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WINTER IN THE LAURENTIANS

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As one of its major activities in carrying out its purpose, the Society publishes a monthly magazine, the Canadian Geographical Journal, which is devoted to every phase of geography — historical, physical and economic — of Canada, of the British Commonwealth and of the other parts of the world. It is the intention to publish articles in this magazine that will be popular in character, easily read, well illustrated, and informative.

The Canadian Geographical Journal will be sent to each member of the Society in good standing. Membership in the Society is open to any one interested in geographical matters. The annual fee for membership is five dollars (Canadian currency).

The Society has no political or other sectional associations, and is responsible only to its members. All money received is used in producing the Canadian Geographical Journal and in carrying on such other activities for the advancement of geographical knowledge as funds of the Society may permit.

TRANS-CANADA SKYWAY

"And on, and on, without a pause, untired
they bounded still;
All night from tower to tower they sprang,
all night from hill to hill".
—Macaulay.

The Trans-Canada Skyway is a telephone and television microwave network which will serve the principal population centres of the country. The microwave channels will be carried by 135 radio-relay towers placed from 25 to 30 miles apart and will extend from Sydney to Vancouver.

The network is designed to accommodate twelve one-way channels—six in each direction—each pair of which will in turn accommodate six hundred telephone conversations, or one two-way television channel in black and white or colour with 120 or more telephone conversations.

Capital cost and maintenance of the radio-relay towers will be provided jointly by Canada's seven major telephone systems grouped together in the Trans-Canada Telephone System.

The network is unique because as far as we know it is the world's longest microwave network presently being planned. The portion now in operation serves the heavily populated areas of Ontario and Quebec and plans call for the completion of the system in 1958. The electronic equipment for the extension of this microwave system is being supplied and installed by the Northern Electric Company.

Northern Electric has been manufacturing, supplying and installing equipment for Canadian communications systems for over half a century. By keeping abreast of developments in electronics in order to supply more and better equipment for Canada's communications systems, Northern Electric Serves You Best.

The complexity of this Trans-Canada Skyway, with its tremendous capacity for telephone conversations and television programmes, might well confound regulators of earthbound traffic. Through the miracle of microwaves the system will be as orderly as a military parade—but infinitely faster.

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CANADIAN GEOGRAPHICAL JOURNAL

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CONTENTS

JANUARY, 1956 ✦ VOLUME LII ✦ NUMBER 1

COVER SUBJECT:—*Winter in the Laurentians*
Photograph courtesy of C.N.R.

	Page
TELEPHONE SERVICE ACROSS CANADA *by MICHAEL SHELDON*	2
CANADA'S OLDEST HOUSE *by JEAN B. CARTWRIGHT*	24
ST. BARTHELEMY: STRANGER IN THE WEST INDIES *by ADELAIDE LEITCH*	30
PET FLYING SQUIRRELS *by FRED BRUEMMER*	36
PICTURES OF THE PROVINCES—IX	38
EDITOR'S NOTE-BOOK	VII
AMONGST THE NEW BOOKS	VII
THE TRAVEL CORNER	VII

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Telephone Service Across Canada

by MICHAEL SHELDON

FIFTEEN MILLION Canadians live in an immense country of amazing resources and widely varying climate. While population and industry are heavily concentrated in a strip of territory one hundred or so miles deep above the 4,000-mile southern border, settlement has stretched far into the northland and fresh centres of activity continually come to life. The conquest of new frontiers, the fluidity of development, has always been a feature of our national life, and its achievement has greatly depended upon the use of far-reaching and reliable communications.

Today, by rail and road, by sea and in the air, the people of Canada, the produce of their land and the work of their hands travel rapidly from one end of the country to the other. And a vast, intricate network of telephone communications carries their voices over the same great distances.

Yet telephone service is primarily a local undertaking, developed to meet local needs so that friends and families could talk to one another—goods could be ordered from neighbourhood store or giant plant—farm, fishing fleet and mine could have contact with their markets; in an emergency—fire or sudden illness—help would be within immediate call. The long distance network was created in knitting together these local developments.

The way the telephone works is quite simple. Every sound, whether speech or just a noise, is made by vibrations in the air. The eardrum catches these vibrations and passes their meaning on to the brain. The telephone takes the sound-vibrations from the speaker's lips,

The telephone links friends across the countryside as well as across city streets.

At left:—
These operators provide long distance service at one of Canada's busiest switchboards.

changes them into electrical impulses, and sends these impulses to a distant receiver. There they are translated back into vibrations, and so into sound. In the form of electrical impulses, speech can be sent thousands of miles away and routed, or switched, through telephone installations which ensure that it reaches its exact destination. While it will travel a certain way unaided if the sound-vibrations are concentrated with a megaphone or kept together in a tube such as a garden hose, the use of some form of energy such as electricity is essential if any considerable distance is to be covered. Also, the sounds will then travel at great speed, approaching the speed of light which is 186,000 miles a second. Travelling by electricity, the voice goes almost instantaneously from one end of Canada to the other; travelling by garden hose, were this possible, it would take over four hours.

Discovering how to transmit speech by electricity, Alexander Graham Bell invented the telephone—in March 1876. Bell did much of his research work in Canada—at his family home near Brantford, Ontario.

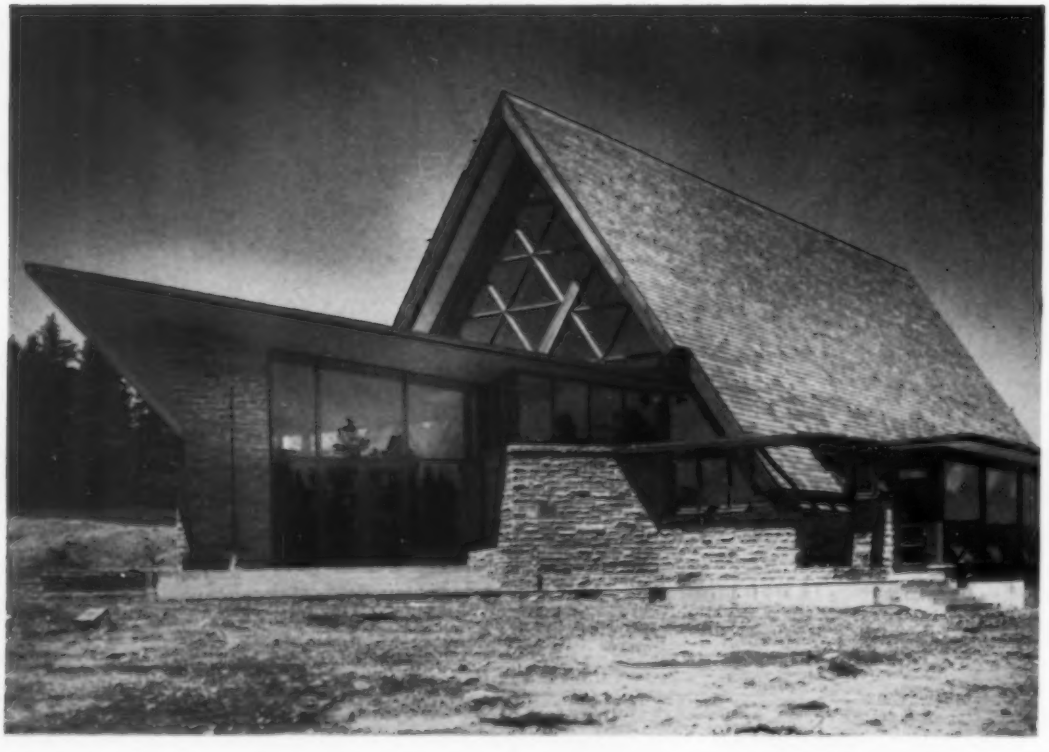
The first successful long distance test of the telephone took place between Brantford and the neighbouring community of Paris in August 1876. And Canada has always been to the forefront in developing the telephone—for its many uses. In Hamilton, the invention was first used in 1877 to enable some good friends to play chess together on a winter evening without having to leave their own firesides. The same year in Glace Bay, N.S., Gardiner Hubbard, father-in-law of Graham Bell, had two telephones installed at his Caledonia Colliery to provide communication between the coal face and the surface.

Today there are over 2,500 separate telephone systems in Canada. Some are owned by shareholders, others are departments of government and many hundreds are relatively small co-operatives created and run by the people who use their services. Their 4,000,000 telephones share in a nationwide network of co-operation.

The captain of a tugboat towing log-booms down the Pacific coast is served by it, just as the bank executive in his Montreal office. Using landline and radio in combination, one can converse clearly with the other; only seconds would be needed to make the connection. And either can place a call to practically any part of the settled world.

The elaboration of this network has taken three-quarters of a century; it continues daily. The first long distance line between Toronto and Hamilton was erected in October 1881. Of his task, the construction foreman later wrote:

"I was instructed to secure a gang and the necessary tools. Such a gang! Not one of them had any experience in pole line construction—including myself. There were butchers, bakers,



The Bell Memorial Museum near Baddeck, N.S. was opened last year. Beinn Breagh on Cape Breton Island just across the bay was Graham Bell's summer home from 1885 until his death there in 1922.

The Bell Homestead at Tutela Heights outside Brantford is a national monument visited by thousands every year.

and candlestick makers, blacksmiths, tinsmiths, old soldiers, with a few 'honest-to-goodness' farmers in the bunch. Our tools consisted of ordinary crowbars and ditching spoons purchased from the local hardware store . . . We literally had to invent suitable tools as we went along."

The latest major addition to the network is the microwave radio relay system now being built from Sydney to Vancouver. This 3,800-mile transcontinental highway of the air will be capable of transmitting simultaneously up to 3,000 telephone conversations and a television program in black and white or in full colour, should this be required.

The chain is being built by the Trans-Canada Telephone System, whose establishment in 1932 was a milestone in Canadian telephone development. Then, for the first time, it became possible to telephone from one end of Canada to the other over all-Canadian lines. Previously wide use was made of routes through the United States. The System is composed of the country's seven major telephone organizations:

Maritime Telegraph & Telephone Company, Limited;

The New Brunswick Telephone Company, Limited;

The Bell Telephone Company of Canada—serving Ontario and Quebec;

Manitoba Telephone System;

Saskatchewan Government Telephones;

Alberta Government Telephones;

British Columbia Telephone Company.

The Trans-Canada Telephone System is concerned with the provision of long distance telephone services on a nationwide scale. The same seven organizations are also members of the Telephone Association of Canada, which serves as a medium for general co-operation. Five further companies belong to this body:

The Avalon Telephone Company, Limited (Newfoundland);

The Island Telephone Company—serving Prince Edward Island;

Québec-Téléphone—serving the lower St. Lawrence Valley;

The Okanagan Telephone Company (British Columbia);

North-west Telephone Company (British Columbia).

Telephone equipment and installations are as varied as the services they provide. There are manual telephones and dial telephones, and the percentage of dial is steadily increasing. In a manual system, the customer tells an operator what number is wanted and she connects the call at her switchboard. In a dial system, the telephone dial sends a series of electrical impulses into the switching equipment, which makes the connection automatically as they instruct.

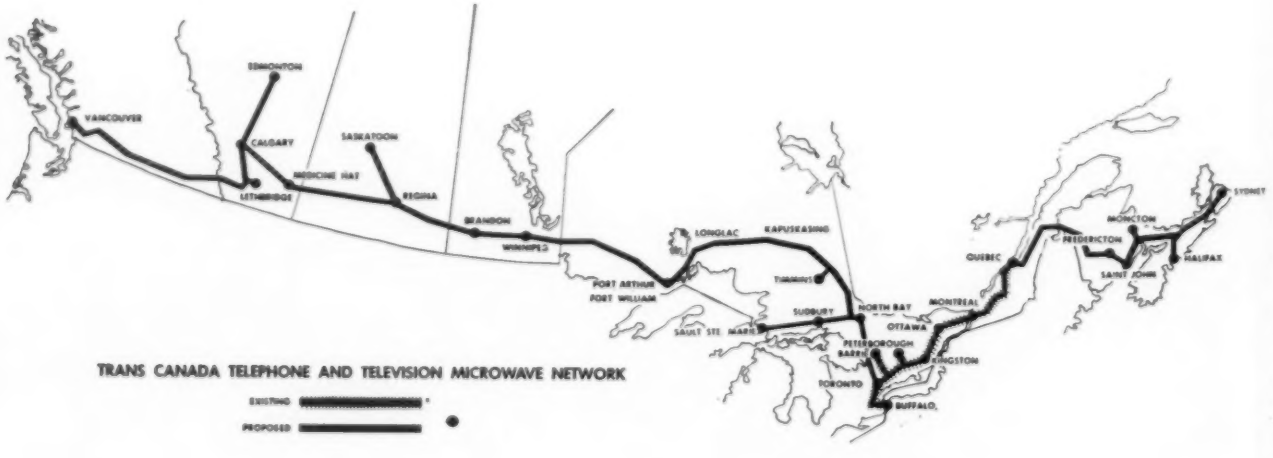
In some rural co-operatives the switchboard fills a corner of one member's kitchen. In other rural areas a small square building, standing on the edge of the village, houses modern dial equipment, unattended except for the scheduled visits of a maintaining technician. In the cities thousands of square feet of floor space are occupied by racks of step-by-step dial switches, clicking rhythmically through the busy day, on alert service through the night.

Long distance service may be provided by one or hundreds of operators, working at switchboards where they can set up connections to anywhere on the continent or to the radio installations which beam calls overseas. Their efforts are reinforced by a new long distance system in Toronto where "magic brain" equipment switches the calls automatically. A similar installation is being completed in Montreal; other related systems are scheduled for Saint John, N.B., Regina and Calgary.

The traditional means of transmission is the telephone line—copper wire strung from pole to pole across the countryside. Or the wires may be gathered into cables, sheathed in lead or specially resistant polyethylene plastic. Cables—sometimes buried, sometimes on pole lines—may carry half a dozen lines to outlying farms or thousands of lines in conduits beneath city streets. And carrier equipment makes it possible to transmit a number of telephone conversations along a pair of wires, either open or in cable, at the same time. Each conversation is carried at a different frequency.

Landlines are supplemented by radio. To communities beyond rocks and water, too isolated to be reached by pole line, radio brings regular telephone service—also to ships at sea, aircraft in flight and vehicles on the highway. And microwave radio relay carries long distance traffic along the busy main routes of Canadian communications.

Since the early years Canadians have been eager telephone-users. Canada has the third greatest number of telephones of any country in the world—exceeded only by the United States and Britain. And Canadians place more telephone calls per person than any other people



A maintenance man works on the intricate equipment of the long distance switching centre at Winnipeg.

—411 a year at last count. Numerous reasons for this addiction have been put forward—friendliness, isolation, the climate. St. John's, Newfoundland, seems to lead the major cities, its people making double the national average of calls. St. John's also has a very high annual rainfall and there may be a connection. Its ladies have become expert at the art of shopping by telephone. They will, for instance, call their favourite store on Water Street to send along a selection of shoes, try them on at home, and return those which are not wanted—when the skies have cleared.

Demand for telephone service has surged ahead in recent years right across the country. It is one of the surest measures of Canada's economic growth. The number of telephones in service has more than doubled in eight years, and in certain areas of intense development the increase has been still more rapid. Calgary, for example, had 36,000 telephones in 1950; there were 71,000 by the end of 1955.

To provide their service economically the telephone companies must get the greatest possible use out of their equipment—while maintaining its reliability. This means installing new equipment where it will do the most good, both immediately and in the foreseeable future. So a great deal depends on sound forecasting. Will industry expand in this district, the telephone planners must ask themselves. Can new families be expected to settle here? Will people of this community marry young? Is this new subdivision going to develop into a

community of its own or will it remain dependent on the city? How quickly will the builders get to work after the new sewer system is opened? It takes at least two years to plan, order and install a dial exchange—and mistakes cannot be corrected without loss of valuable time.

The problems of development vary considerably in scope and complexity. The Alberta hamlet of Redwater used to have a single telephone. Once oil was discovered, over 300 were required at fire-alarm speed. Post-war Toronto, spreading across former farmland in many directions, has presented a major challenge to the telephone planners. Formerly small, self-contained communities have become the large suburbs of a vast metropolitan area. People who live there work mainly in the city, do much of their shopping in town—often by telephone—and have friends throughout the area. In the same period factories and large office buildings, employing hundreds and thousands of people, have sprung up. A new company headquarters can absorb as much equipment as a community of one thousand households.

Cable to bring service to hundreds of homes is buried beneath the city streets.

The telephone company has had to meet a tremendous increase in demand and at the same time devise the service arrangements best suited to this multiplication of social and business relations.

The technique it has employed is known as Extended Area Service. Residents of suburban communities are enabled to call directly to the city and to neighbouring exchanges without long distance charge. The first fringe of Toronto suburban communities received the new service in 1952—communities like New Toronto, Willowdale and Scarborough. But the growth of the city has continued at an accelerated pace, and this spring a second group will be added. The Toronto toll-free calling area will then extend up to 15 miles from the centre of the city, taking in communities as far off as Thornhill, Agincourt and Port Credit.

This means that a telephone subscriber in Toronto will be able to call directly, without long distance charge, to any of 600,000 telephones over an area of 370 square miles, and a suburban subscriber to more than 500,000 telephones. The telephone company expects calling between the exchanges involved in this second slice of Extended Area Service to increase five times. Similar service arrangements have been made for Montreal, Ottawa and other Canadian cities, as well as for a number of closely related smaller communities.

Urban service on this scale requires an amazingly complex network of wire and cable, and dozens of exchanges, each with its own switching equipment. Last year, $35,000,000 was spent on expansion in the Toronto area; the same sum is being spent again this year. But telephone service does not involve such vast investment everywhere. Up in the Yukon four settlers make do with a 52-year-old system to link their homes. The postman finds it especially useful. He always calls ahead to his next stop, and it is a rule that a search party be sent out if he does not turn up within a couple of hours. For the intense cold makes any delay an emergency.

There are many thousands of homes throughout Canada served by rural party lines. The folk on the far end of some lines may find their caller's voice a trifle faint at times, but it was only through this simple type of installation that telephone service could be provided at payable rates in areas of very sparse settlement —areas such as that centred on Quesnel, B.C., where the repair man has to patrol over 500 square miles of rugged country.

In some ways the rural party line is more flexible than more mechanized and impersonal systems. If there is an emergency or if a show comes to town the operator can put out a general call and everyone will know what is happening. Or a farmer can summon his neighbours should his barn catch fire.

The organization of rural telephone service varies considerably from province to province. In practically every part of Canada there are groups of farmers who have built and who maintain their own lines. In Saskatchewan the telephone system, a crown corporation, is responsible for long distance and most urban services; the government department of telephones assists the rural co-operatives and other small companies. During the winter months it runs a special training school for rural telephone people, the maintenance men and the contractors. The emphasis is on practical problems, and 65 to 70 men pass through the school each year. In other provinces the main telephone systems have special departments to advise and assist connecting companies. This is sound business, for all customers benefit when rural lines are improved.

In many small exchanges the telephone company provides and maintains the equipment, but the office is run by an agent rather than an employee of the company. The agent manages the switchboard as well as the business side. All other things being equal, it is a marked advantage, therefore, if the agent has three or four intelligent daughters of well-spaced ages. And mothers have been known to take on a telephone agency in order to keep their daugh-

This machine lashes telephone cable to the supporting line of steel wire.

ters happily employed at home—until marriage.

Steadily, throughout Canada, the average number of customers on a rural line is being reduced. Twenties and thirties, once common, are now almost unknown. In many places this change coincides with the introduction of community dial offices. The equipment there will connect local calls automatically, pass long distance and information calls to the nearest large centre. Community dial offices are being built complete at the telephone shops in Winnipeg. Fully equipped, each building is hauled on rollers out to its chosen prairie site. Plant men connect cables, laid in advance, to the equipment, and the office is at once ready for service. Dial exchanges to serve as many as 500 customers have been built and transported in this manner.

This is one way of providing telephone service in quite isolated areas. At Norway House the problem required somewhat different treatment. Norway House is a settlement on the north-east shore of Lake Winnipeg. Indians live there, missionaries and teachers, Hudson's Bay men, the R.C.M.P. and other officials. But the settlement is scattered over eight miles of rocky inlets, and pole line building was an impossible proposition. So the local telephone man decided to make use of the waterways for voice communications as they are used for travel, and he laid out a 14-telephone submarine exchange. He used regular telephone line coated with neoprene plastic, and his outboard served as cable-laying ship. The first year the line took a bad beating when the ice broke up, but a local Indian fisherman was called on to pick the route for the re-laying, and this trouble is now under control.

The people of Norway House say the telephone provides the greatest improvement in living conditions they have ever enjoyed. Officials save days of hard and often wasted travel, and the Indians have been delighted to find the machine can cope with Cree. Radio telephone provides long distance service to Winnipeg and the rest of the world.

As new telephones have been installed in their daily hundreds all over Canada the long distance routes have grown busier and busier. More people have been calling and people have been placing more calls. In this regard, as in the planning of local facilities, the telephone industry has to work with its eye on the quite distant future. For new installations must give

The new telephone building in Regina houses both local and long distance switching equipment.

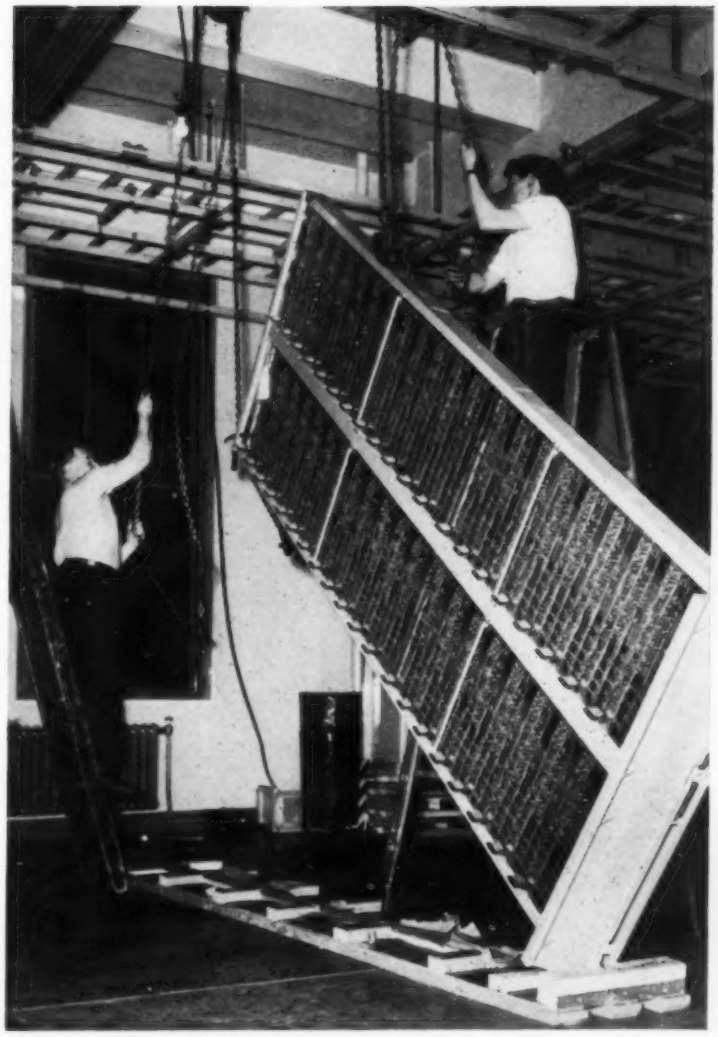
many years of service if their considerable cost is to be justified. Tomorrow's telephone service can never be left to take care of itself.

Telephone improvement advances in two directions—switching and transmission. In both categories major long distance projects have been undertaken in recent years—and are still under way. In switching, there has been the development of equipment that makes possible direct distance dialing; in transmission, the building of the transcontinental microwave radio relay network.

The mechanization of local telephone service —its conversion to dial—alone made possible the tremendous expansion of the past three decades. Without the dial telephone and automatic switching it would have been impossible to find enough girls to handle anything like the volume of traffic. To meet the post-war demand for long distance service, the telephone companies decided to mechanize their long distance installations—so that the operator originating a call could dial direct to the distant telephone without the assistance of other operators along the way. Dialing networks were built up in several areas; in the Maritimes, for example, through Quebec and Southern Ontario, and between the main Prairie centres. There is operator direct dialing between a number of British Columbia cities, in some cases over radio channels.

But these limited networks are only the foundations of a continentwide system which before long will allow long distance operators to dial calls direct to practically any telephone in Canada and the United States. And this will lead in due course to the extensive direct dialing of long distance calls by telephone-users themselves—to the transformation, as it were, of the whole of this continent into one vast telephone exchange.

For calls to be dialed across the continent there must be equipment capable of switching these calls automatically. The equipment must receive the call just as an operator would, make a note of the number, pick the best route, check if that route is free. If not, it will test others until it finds a free circuit. Then the call is sent on its way. A call may travel through as many as eight centres; the last one will ring the telephone bell. Such intricate, electronic equipment, which can think for itself, is being installed in the main long distance centres of Canada and the United States. These will be the control points in a network of telephone circuits which will switch and carry a call from the Atlantic to the Pacific in a matter of seconds.



Equipment is installed in the automatic long distance switching centre in Toronto.

It is expected that most Canadian cities will be part of the continent-wide network by 1960. The first major step towards their integration was taken last June with the opening of the automatic long distance switching centre in Toronto. Bays of the latest, cross-bar equipment here receive, sort and forward calls originating in or destined for a hundred long

distance offices in Canada and the United States. When the network is in full operation Montreal and Regina will be the two regional switching centres for Canada.

In the traditional manual operation, an operator at her switchboard connects a call by hand and then cuts out of the circuit in order to be free to handle the next one. The automatic switching centre operates in just the same way, making use of what is known as common control equipment. When a call arrives it is taken over by a "sender." The "sender" is really in charge of the switching operation. Having recorded the number, it sends the first three digits to a "decoder." The "decoder" has to find out for the "sender" what action is needed to forward the call—which route it should take, whether all the digits in the number should be sent forward, whether some should be changed, what kind of telephone office is at the far end and so on. It in turn applies to one of several electronic card-indexes; in each of them information is stored on as many as 1,000 metal cards. The appropriate card is scanned electronically and the required information is registered in the "decoder." At this time a "marker" also comes on the job. It picks out a free line from the appropriate group and connects it to the incoming call. When the connection has been made, the "marker" signals all clear to the "sender" which passes on the call and releases the common control equipment. Should all the lines in a group be busy the card index is asked to indicate the next most direct route. In any case, the whole operation takes just a second or two.

Intricate equipment like this, working at fantastic speed, requires most careful maintenance. Every operation by the various components has been timed in milliseconds, and if any operation goes overtime at all a trouble-recorder at once informs the skilled men who watch over the machine. Similar attention must be paid to all the long distance circuits, for only the machine knows exactly which route any call has taken. Maintenance men at a test board record and follow up any indication of trouble; they are aided by special equipment which ceaselessly tests all the lines out of the office, one after another 24 hours a day.

A telephone number is like the address on an envelope. If there were two people with exactly the same name and address there would be no way for the postman to be sure he was delivering a letter correctly. If there were two identical telephone numbers the equipment would not know for sure where to deliver a call. Steps have therefore been taken to ensure that there is no duplication of telephone numbers anywhere in North America.

The whole of the continent has been divided into some hundred numbering areas, and each area has its own three-digit code. New Brunswick, for example, has 506 as its code, the area centred in Quebec City is 418, Alberta is 403. Duplication of regular telephone numbers is being eliminated within each area. If there is an exchange called CEdar 3 in one city there will be no CE 3 or other exchange using the same pulls of the dial, for example ADams 3, anywhere else in that area. As part of the same plan, a new system of telephone numbering—

Submarine cable being laid between Levis and Quebec City.

two-letter and five-figure numbering—is being introduced throughout Canada and the United States. CEdar 3-4281 would be a typical number. If it were in New Brunswick, the 506 area, a long distance operator in another part of the country would simply dial 506 CE 3-4281; the automatic switching system, would receive and act on the digits 5062334281.

Today, all exchange names have to be easy to spell and pronounce all over the continent, and some names of local significance have had, regretfully, to be given up. But quite a number could be retained—MOntcalm and MArquette in Quebec for example. Some far-off operator asking for a MArquette number may think she is calling MArket, but the first two letters are the same, and that is what counts for the switching equipment.

Direct distance dialing and microwave radio relay have advanced in parallel. The first microwave point-to-point link in Canada opened in 1948, providing 23 channels between Nova Scotia and Prince Edward Island. In 1952 a radio relay system went into service between Halifax and Saint John, N.B.; today it carries 46 channels for telephone conversation.

It became apparent after the second world war that large-scale expansion of long distance facilities on the vital Montreal-Ottawa-Toronto triangle would soon be needed. Following extensive engineering studies, it was decided that microwave radio relay would best meet the requirements with regard to economy, reliability and expansion-potential. The system envisaged would also transmit network television programs, and so fill another national communications need. Construction of a radio relay chain between the three cities was put in hand, with an extension from Toronto to Buffalo for network television purposes. Today two-thirds of the 400 circuits between Montreal and Toronto are carried by microwave. While most radio waves can simply be broadcast and will be picked up by their destined receiver, microwaves, which are ultra-short radio waves about the length of a cigarette, must normally travel within line of sight and so they are beamed from one relay tower to another. The towers are built about 30 miles apart,

The tower-erection crew carry radio relay test-tower sections up Morrissey Ridge near Fernie, B.C.

wherever possible on hills or high buildings. The microwave antennae stand on top of the towers, and the system, if the microwaves could be seen in movement, would look like a row of giant searchlights with fixed beams—set in a slight zigzag to prevent over-eager signals leaping into the wrong antennae. On the first Quebec and Ontario installations the antennae are shaped like squared horns; on the new towers east to the Maritimes and west to the Pacific they will resemble giant sugarscoops. Equipment, housed in a small building at the foot of each relay tower, strengthens and balances the microwave signals for the next lap of their journey.

The first stage in a microwave project is to locate and test each tower-site. Portable towers of aluminum, made up in eight-foot sections, are used. Once a tower has been

The dish-antenna is being winched up the tower for radio relay site-testing operations.

erected, engineers haul up a small dish-shaped antenna and exchange signals with the testers at the next site. They must determine not only the exact location for the permanent tower but also the height which will enable the microwaves to clear any intervening obstruction, and will give the best reception. They winch the antenna up and down the tower, turn it to left and right in order to catch the strongest signal. Meanwhile a third tower is being built on the next likely site so that no time will be lost in testing further along the chain.

When the site is not far from the highway and the terrain not too rugged, site-testing is reasonably straightforward. But there are wide areas where an access road must be bulldozed through the brush and the site itself be cleared before the tower can be erected. This was the case in Northern Ontario where the route was plotted last year. From Hearst to Long Lac the contractor responsible for erecting the towers had to organize a caravan for his men, with mobile bunkhouse, restaurant and water-wagon drawn on trailers along the Trans-Canada Highway parallel with the planned microwave route.

Path-testing in the Rockies had its problems too. Here, as in Northern Ontario, likely locations were first picked by aerial survey. On Morrissey Ridge the proposed site was 6,700 feet above sea-level; it took a bulldozer two months to build an eight-mile access road from the highway. The testing tower was 100 feet high, with the guy wires stretched to the edge of a sheer cliff. Had a 200-foot tower been needed, the guys would have had to be dropped 4,000 feet down the cliff face. On Dog Mountain the tower sections, the men to erect them, the engineers and their testing equipment were all delivered to the site by helicopter. That part of the job was completed in two tightly scheduled days.

A new method of preliminary testing was developed by the engineers in British Columbia. Elementary but remarkably effective, it avoided trucking heavy equipment up to tentative mountain sites, a costly process. At each proposed site an engineer established his exact position by walkie-talkie, then, using a hand-mirror, reflected the sun across to his neighbour. The exact clearance between the light path and the top of any possible obstruction could be measured geometrically. At Sumas Mountain there was a ridge in front of the proposed site. Using a helicopter, an engineer with a mirror discovered the relay tower would have to be 550 feet high to clear the obstruction, and so an alternative site was chosen without loss of time and effort.

Site-testing will also reveal problems of a technical nature; for example, wide stretches of water may have a strange effect on microwaves. When the link was built between Toronto and Buffalo it was necessary for the microwave beam to cross Lake Ontario or make an awkward detour. But the lake acted as a mirror for the radio waves and under certain conditions the reflected waves would interfere with the direct waves. Fading of the signal resulted. To overcome this trouble the engineers devised a special two-frequency system. When one frequency begins to fade the equipment switches automatically to the other; luckily

the frequencies are not given to fading at the same time.

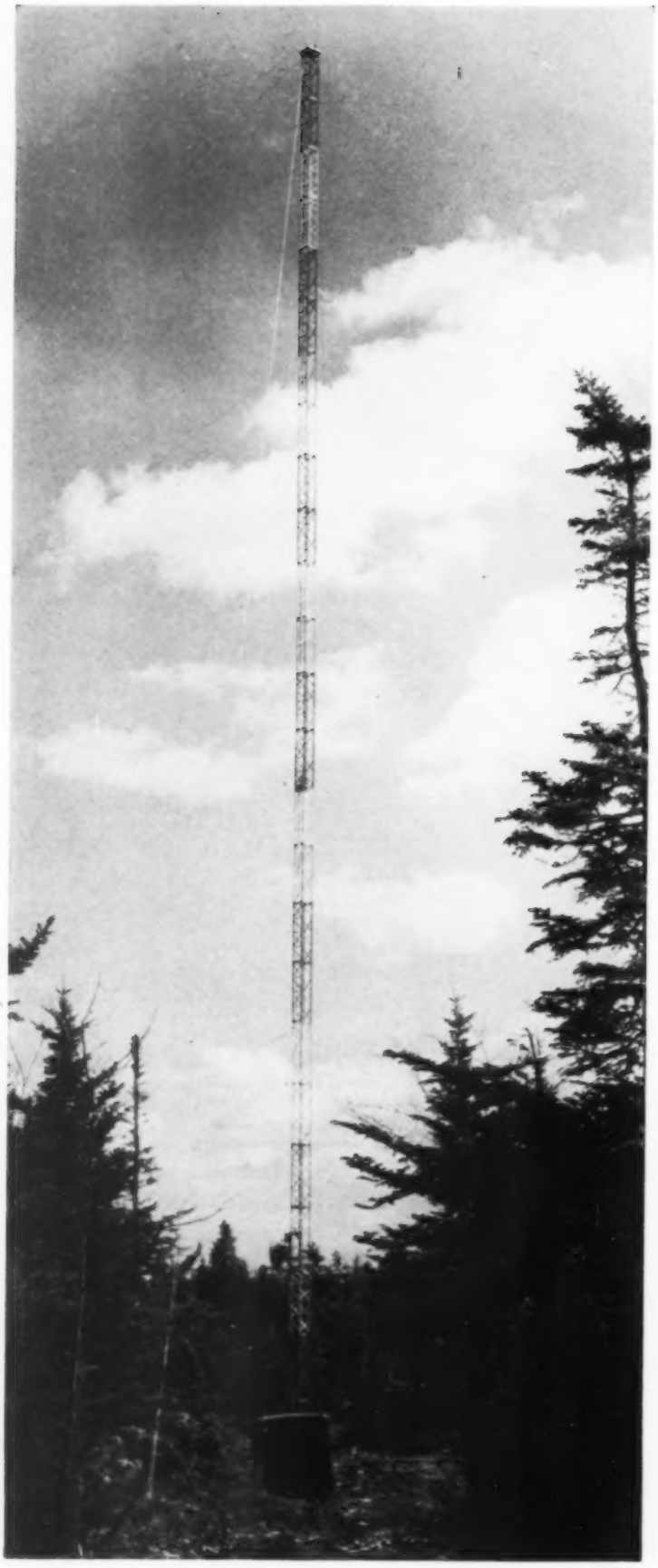
Once the sites have been fixed the work of erecting permanent towers begins. These steel structures may rise as much as 350 feet above ground level; the highest in Canada will be just outside North Bay. Tower building, too, can present problems. In Ottawa the tower is located on top of the telephone company building, and a special design without diagonal struts had to be devised to meet town planning requirements. At Flynn Lake in Northern Ontario 16 acres of bush had to be cleared around the site as defence against forest fires.

A different kind of problem arose in Southern Saskatchewan. Gumbo soil does not provide the surest of foundations for 300-foot towers, especially as the volume of the soil varies in wet and dry weather. So special engineering consideration, based on scientific analysis of the soil, has had to be given to the tower foundations. And at three sites, even though the towers will not lean Pisa fashion, it may prove necessary to adjust the angle of the antennae with the change of season and soil.

The majority of the 137 relay towers of the transcontinental system will be unattended, but linked by telephone with maintenance centres. Wherever possible the regular telephone network will be used for this, but for a number of isolated sites point-to-point radio is the only feasible method of transmission. A typical alarm and control centre is being established at Kapuskasing; telephone men there will have charge of twelve unattended Northern Ontario sites. Should trouble occur an alarm will flash immediately in the centre, and the attendant will probe electronically to determine exactly what happened and where. His equipment will enable him to identify up to 42 possible sources of trouble such as power failure, a blown fuse, a failing tube, low fuel supply in the emergency power engine, overheating or underheating of the equipment building. He will be able to switch in standby equipment immediately by remote control, and will then alert the technical staff responsible for maintenance and repairs.

The microwave radio relay network now extends from Toronto to Quebec City. The other sections are being completed in stages and the entire transcontinental system will be

Site-testing in progress at the radio relay site on Blackwall Mountain in the Rockies.



in service by the summer of 1958. Spur lines from the main chain now serve Kingston, Peterborough and Barrie. They are projected for Halifax, Moncton, Timmins, Sudbury, Sault Ste. Marie, Saskatoon, Edmonton and Lethbridge.

Microwave radio relay is meeting Canada's needs for long haul telephone facilities. Throughout the country other types of radio telephony are providing essential communications, for radio is often not merely the most economical but indeed the only way of linking isolated communities with the rest of the world. Also, radio is being used increasingly in mobile telephone networks.

Newfoundland is linked with the rest of Canada by radio telephone, with channels beamed both to the other Maritime provinces and direct to Montreal. St. John's has radio links with Grand Falls and Corner Brook, the radio telephone reaches all the towns on the Burin Peninsula, and extends up the east coast through Gander to Twillingate, Fogo and the Little Bay Islands. In New Brunswick, radio serves isolated mining communities in the north of the province and off-shore islands in the Bay of Fundy.

Telephone development on the lower St. Lawrence has been intense in recent years. In keeping with the economic advance of the region, Québec-Téléphone has increased the number of telephones it serves from 7,000 to 30,000 in ten years, and is steadily modernizing its installations. Mining developments such as the Ungava iron ore project, a new copper mine at Murdochville in the Gaspé and various base metal mines, together with the expansion of pulp and paper operations and hydro-electric generation, have paced the prosperity of the region. Telephone service can often be furnished by landline, but a radio system has been developed to link the north and south shores of the river. Transmitters are located at Rimouski, Matane and Cap-Chat

This temporary tower was erected to test the Trans-Canada radio relay site at Beaverbank, N.S.

on the south shore, at Forestville, Baie Comeau, Baie Trinité, Clark City and Seven Islands on the north shore. From Forestville a line runs to Labrieville, site of Hydro-Québec's 1,200,000 h.p. Bersimis River project. From Seven Islands a line of the Quebec North Shore and Labrador Railway brings long distance service to the telephone exchange at Knob Lake, 360 miles inland. The integration of landline and radio throughout the area provides the most flexible and reliable telephone service.

A number of Canadian cities have mobile telephone service. Inaugurated in 1947, the mobile telephone network in Quebec and Ontario now stretches from Quebec City to Windsor, and north to Georgian Bay. Throughout this most populous area of Canada 34 transmitter-receiver stations provide continual, immediate telephone service for hundreds of vehicles, each of which is equipped with a telephone set and its own compact two-way radio. The provincial highways departments use their mobile telephones to coordinate traffic control and snow clearance. Police departments, ambulance services and doctors are regular mobile customers. With mobile service, salesmen can keep in touch with their home offices, fuel firms and various stores provide rapid home-delivery service, and contractors direct the movements of large and costly demolition or building equipment; idle time would mean considerable financial loss. Point-to-point radio is widely used in the northern districts of both Quebec and Ontario; it brings telephone service to mining and logging communities. A link from Marathon, for example, serves the Geco and Wilroy copper mines at Manitouwadge, 40 miles to the north-east, where an exchange was opened in the fall of 1955. Islands in Georgian Bay and Lake Nipissing which have become popular tourist resorts also get their telephone service by radio.

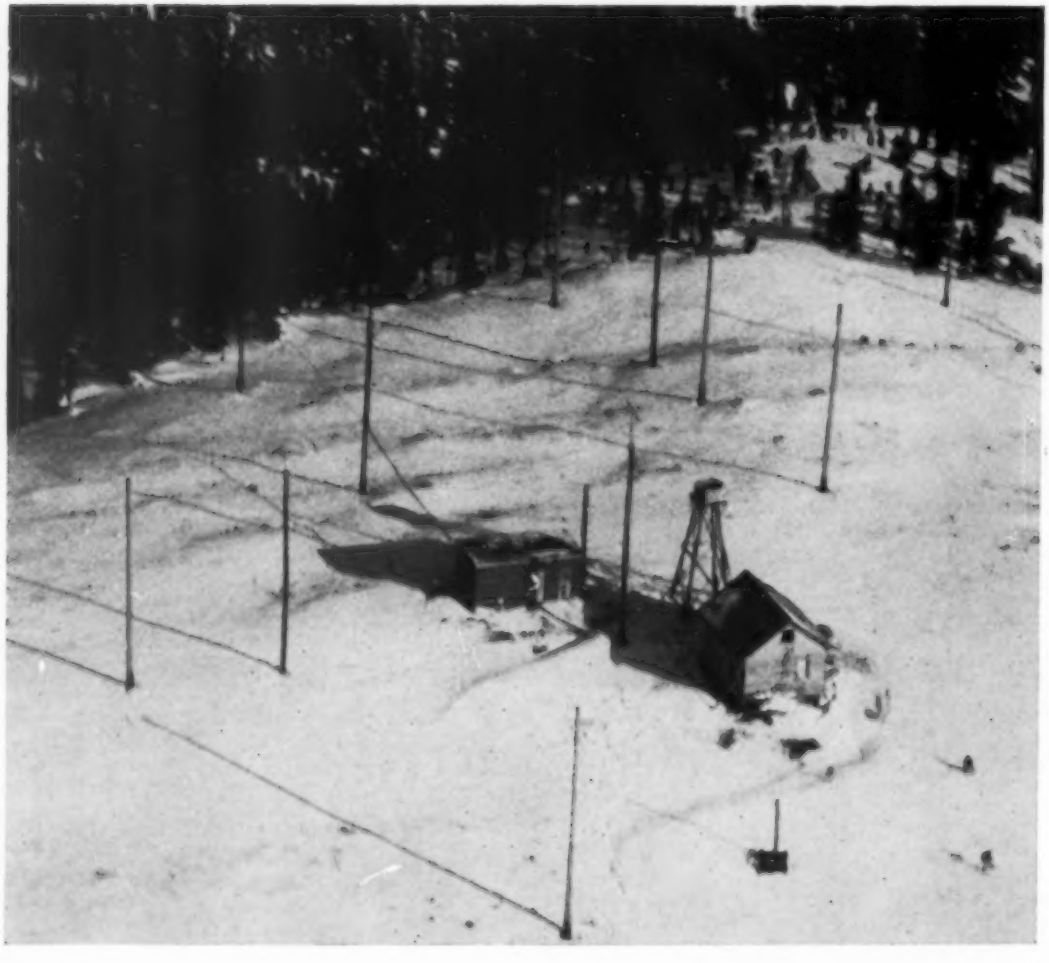
In Manitoba radio telephone service was

The microwave radio relay tower stands high above downtown Toronto.

started to provide communications for isolated nursing stations; no man would attempt to estimate the lives it has saved. In an emergency the doctor or the air ambulance becomes hours instead of days away, and, if the doctor cannot come in person, his experience is at the end of the line. Today in northern Manitoba there are telephones at isolated settlements, on the boats that ply Lake Winnipeg, in bombardiers (snowmobiles) and the aircraft of the bush pilots.

Radio terminals are located at Gimli, Norway House and The Pas. The service has revolutionized the fishing industry on Lake Winnipeg, greatly increasing the efficiency of its operations, but its value lies above all in the way it has broken down the isolation of the people it serves, providing them with a network for mutual assistance. Dr. John Millar, who was in charge of the hospital at Norway House when the service was opened, had a radio telephone installed in his bombardier. "It changes the whole picture of my operations," he said. The value of the service is revealed in the story of a winter journey Dr. Millar undertook. From Norway House he travelled 75 miles by bombardier down the frozen lake to the Poplar River settlement, to investigate reports of sickness. On his way back the hospital called him to say there was an emergency case at Island Lake, 200 miles to the east. The doctor turned about, attended the patient at the Island Lake nursing station, then returned to his hospital. He had made a 500-mile trip to carry out two calls, yet he was never out of touch with his own base. A doctor in these parts can now transport sick children by bombardier, for, if he has a breakdown, he can summon new transportation immediately. Previously there was very real danger of a child freezing to death in a stalled bombardier.

There are countless stories of how the service has brought help to aircraft in trouble. A pilot lost in bad weather over the shore of Hudson Bay calls in for guidance. The radio operator says later — after the plane has landed safely, "It's as if I had him on the end of a string." And if a plane makes a forced landing, it is a great comfort for the travellers to be able to call home and say that there is no real cause for alarm.



The radio transmitter at Baie Comeau, Quebec, provides telephone connections across the St. Lawrence to Matane, Rimouski and beyond.

Long distance lines serving the Trans-Canada Telephone System follow the St. John River outside Fredericton, N.B.

The most extensive radio telephone network in Canada is operated by the North-west Telephone Company in British Columbia. Radio chains from Vancouver stretch eastward to Kamloops and northward to Prince George. Unique in North America is the operation up the B.C. coast. Its furthest transmitter is some 450 miles north of Vancouver at Prince Rupert, but a ship within the Arctic Circle, 3,000 miles out of Vancouver, has called in so that the men on board could chat with their families.

The network serves 540 shore installations and over 2,500 ships. The ships are mainly tugs and fishing boats; the land customers are of many kinds — lumbering and fishing camps, police and other government stations, the kind of general store whose customers all arrive by water. Mrs. Dickie has a public telephone in her store on Stuart Island. Men from logging camps on neighbouring islands, small camps which do not have their own telephones, come in to call for spare parts. There are calls for planes for various journeys and calls to the womenfolk back home. The Indians on a nearby reservation drop in regularly to talk to their children at boarding school near Vancouver. If there is any delay in getting through the customers can become very impatient. Should they miss their tide, powerful waters pouring through the narrows will hold them up for many hours.

The main radio board is in the Vancouver long distance office. It seems like any other telephone switchboard — except for the calls that go through it. Every day the big fishing companies hold conference calls with their fleets. The boats exchange information about their catches, about where the salmon or herring are to be expected, and head office gives its orders. Using the radio telephone, the fishing industry can operate with efficiency undreamed of in early days of isolation. Boats can collect in areas where the catch is good instead of passing days and even weeks without a strike. No time is lost in sending packers to the fishing boats which need them, and in directing the packers to the cannery best able to process the catch. Traffic jams at the canneries and consequent wastage of fish are avoided. And the canneries, once scattered up and down the islands, have been concentrated in three or four areas, raising the efficiency and economy of their production, making it easier to control the quality of their output.

Besides the fleets of the big fish companies many small, one-man boats work among the islands. Most of these have radio telephones. Now, as Yukio Nakano, who operates his own seiner, said, "I am no longer alone. If I need help I can call to my friend. Maybe he is just the other side of the island."

The tugs, too, have their radio telephones,

whether they work in Vancouver harbour or up and down the coast as far as Alaska. Some tugs may spend as much as 40 days out of port, taking prefabs up to Kitimat or bringing copper, lead and zinc down from the Taku River, which flows into the sea near Juneau. But the tugboat operation now runs as smoothly as a radio-taxi service. On a wall in the Vancouver main office there will be a large-scale map of the coastline with a flag for every tug in the company's service. There are tugs for the inside waterways and tugs for the open sea: the company will know exactly when one should take over from the other. Deadheading is kept to a minimum for a tug that has been away on a distant mission can be directed to other tows on its way back. The amount of logs in the booming grounds is known and the exact number of tugs needed to tow them down can be sent out. And if any tug is in trouble, help will be despatched rapidly from the nearest point.

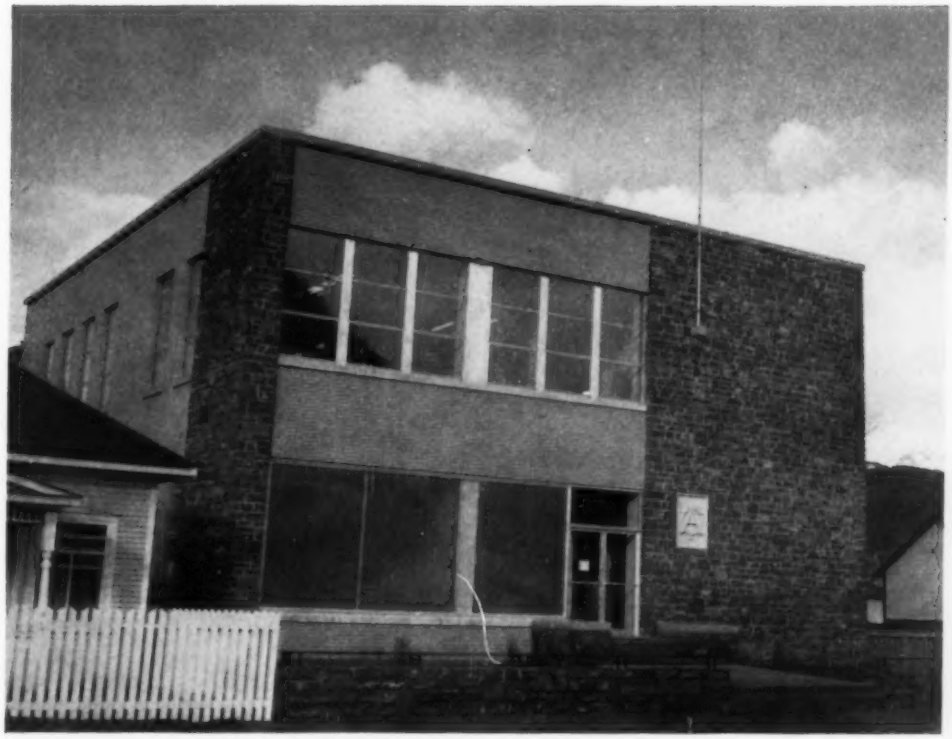
Here is the overwhelming value of the radio telephone for the men who live on this tough and often treacherous stretch of water — the greater safety it has brought to their lives. The radio board is manned 24 hours a day and every boat is supposed to monitor constantly at least one frequency. The skipper of a boat in trouble will normally call the company for which he is working. The telephone operator will ask him, "Is your ship in distress?" — in other words, is this just trouble or an emergency? If he answers that the ship is in distress, the operator at once calls the Air-Sea Rescue Service of the RCAF. Also, by means of a conference call she summons the assistance of any ships in the vicinity.

The captain of the nearest vessel is appointed search master and directs local activities, and the telephone operator stays on the line to provide any help that she can. A rescue operation off the Alaska coast has been brought to a successful conclusion within 20 minutes, directed from Vancouver. Up to 70 boats have taken part in a search, called in by radio telephone.

The regular CPR ferries which run between Vancouver Island and the mainland are equipped with coinbox radio telephones, and these larger vessels have been called on to heave to for hours to shelter a fishing boat or tug at the mercy of the waves. Perhaps the full meaning of the service, its tragic side and its triumph, is best illustrated by the story of a recent rescue. A fish packer whose diesel had jammed was drifting onto the rocks in high seas. For an hour, two hours the captain sought and received advice on how to repair his engine. Then his men began to say goodbye to their families. Finally a diesel expert, located in Seattle by the telephone operator, was able to explain how to take down a defective fuel pump, repair it and get it working. And the engine started again — just in time.

For the fishing and towing industries specialized telephone services mean new and more efficient methods of operation. Specialized services have been and are continually being developed for many other industries as well. The telephone companies consider it part of their job to make provision for any type of communications which their experience and resources fit them to provide. They operate teletype service — the transmission of printed

Yukio Nakano uses the radio telephone on his fishing boat up the B.C. coast.



This new dial telephone exchange serves the resort centre of Banff, Alta.

messages over telephone lines — on a Trans-Canada basis. They provide, too, circuits for telemetering to electric power and pipe-line companies. Information about the way equipment is operating is sent automatically over telephone lines to central control points. Instruction to the equipment can be despatched in the same way.

These special services may have local or far-flung application. A private communications system was used to direct the erection of the steel for a 22-storey building in Toronto. Each of the guy derricks which raise the steel beams and swing them into position is powered by a hoisting engine, located out of sight beneath the structure. In the past the construction men have guided the hoisting engineer by a system of bells. Steel men and hoisting engineer, wearing headsets like an operator, used telephone equipment on this job. The new technique both added to the men's safety on the job and helped them complete the work faster.

The oil industry needs a variety of telecommunications. Take as an example the operation of the gas pipeline from Edmonton to Drumheller. Teletype carries instructions to the pumping stations and tank farms. The men who maintain the pipeline keep in contact through mobile telephone, and a point-to-point radio system is being installed to increase the efficiency of the overall communications network. The mobile telephone is also of great service during exploration; one geologist can give expert advice to a number of drilling rigs at the same time.

Ontario Hydro is the largest publicly owned hydro-electric utility in North America. Close to 1,500,000 customers, their homes and industries, depend upon it for light and power. Until recent years Ontario Hydro ran its own communications system; now this is being handed over progressively to the telephone company. The first major job was to provide communications services during construction of the giant generating station at Niagara Falls, Sir Adam Beck No. 2. Some 7,000 men, working out of three camps — each a town in itself — were employed on this project. They dug two tunnels, each 5½ miles long, right under the city of Niagara Falls. The telephone company now provides all the local communications needed by Ontario Hydro. It develops any special equipment required for the job — for example, a despatcher's turret,

a kind of private switchboard which has no cords and so looks like an immense adding machine. This serves the power supervisor in the control room of Sir Adam Beck No. 2. Lines from inside the generating station and the local telephone exchange, from mobile channels and Hydro microwave connections, can all be freely interconnected by the equipment. The power supervisor uses it to control operation of the generators in his charge, and to keep in touch with the rest of the vast Hydro power network. The telephone company is responsible for communications on the great St. Lawrence power project at Cornwall; it is also making sure that the people whose homes are to go under water will have telephone service in their new townsites.

In these days when any air attack would come at jet-propelled speed a super-sensitive warning system is an essential element of our national defence. And its reports must reach the centres from which counteraction can be directed with the greatest possible rapidity. It is natural that the telephone industry, with its immense resources of experienced communications men, should actively cooperate in the creation of such a defence system.

Today, members of the Trans-Canada Telephone System are directing construction of the Mid-Canada Line, one of the defence warning lines which span the north of the continent. Another Trans-Canada project has involved the installation of the first full-scale microwave relay system which sends its waves over the curve of the horizon. An enormous dish-shaped antenna shoots out the radio signals with immense power. When they bounce back to earth again from outer space a small percentage are collected by the receiving antenna. Because of the great power used reception is so clear that you can talk to someone a thousand miles away just as if he were in the next room.

Planning and construction of these defence installations have taken hundreds of telephone people into the great frozen wastes of the sub-Arctic. There they practise their skills under the toughest conditions. Their supplies come from landing-craft drawn up on rocky beach-heads, helicopters and other aircraft that land on deep-cut inlets or postage-stamp airstrips. In some areas the quantities of construction material required can be delivered only by tractor-train after the muskeg has frozen.

Whatever the purpose for which it is employed, the quality of telephone service depends above all on the people who work in the industry, on their traditional sense of purpose and thus of service. Neither the climate nor the geography of Canada has made their task easier — even on regular, routine jobs. The telephone lines must be maintained in all weathers, with snowshoe or snowmobile patrols on many isolated stretches. Sleet storms and floods can cut off service to dozens of communities. Great winds will wreak havoc.

The telephone job calls for another quality too — the ability to see where communications can serve and how they can be made to serve better. The story of the Moose River, N.S., mine disaster is a classical example. Three men had been buried by the cave-in of an abandoned gold mine. Contact was made with them but the only means of communication was a pipe 1¼ inches in diameter. The telephone company equipment engineer was asked to produce a telephone which could be let down this pipe. He made the set out of a vest-pocket flashlight, it was lowered down the pipe, and served for three days until the men were rescued.

Our telephone communications, widespread and reliable, essential to our social life, economy and national defence, have required a vast investment in equipment, carefully designed to fulfil the particular tasks assigned to it. The care and use of this equipment is held as a personal responsibility by many thousands of telephone men and women. They have the will to serve their fellow Canadians — wherever, whenever, and in whatever way it may be required of them.

The strength of the microwave signals and the quality of the television picture they carry are checked continually.

The Jesuit Mission of St. Joseph de Sillery, near Quebec City, is believed to be the oldest house in Canada today. There is a continuous record of its ownership and use since construction in 1637.

Canada's Oldest House

by JEAN B. CARTWRIGHT

Photographs by Oesterwinter

FROM MODERN SILLERY, a suburb of Quebec City, the hill drops steeply to the Chemin des Foulons that winds along the St. Lawrence River. Here, facing the river, stands what is said to be Canada's oldest house, built in 1637 for the Jesuit Mission of St. Joseph de Sillery.

This building has survived Indian raids, war, and a disastrous fire. The latter, which occurred in 1657, destroyed the wooden portion of the house. Evidence of the intense heat of the blaze is the blackened flaked condition of some of the stone and the soft pink colours of the mortar.

Forty-seven feet long and twenty-six feet wide, the house is constructed of grey native stone. It has a high gabled roof, dormer windows, huge chimneys, and walls three feet

The mission, now a museum, contains some interesting antiques, including this handsome leather-upholstered chair in the largest room on the ground floor.

thick. The interior is pleasantly proportioned, with deep window embrasures, wide floor boards, and wooden panelling. Two of the four fire-places are believed to be as originally built.

Walking alone through the deserted rooms, it is easy to imagine the echoes of deep voices singing mass, footsteps on the worn narrow stairs, or the strange guttural sounds of the Algonkian tongue. Although a large fire-place indicates the location of the kitchen, one can only guess in which room the simple food was served. It is supposed that the room to the left of the front hall was the first chapel, as there is a deep alcove, perhaps designed to hold an altar. The room to the right, which is twenty-four by twenty feet, probably housed two families of Indians who lived at the mission during the first long winter of its existence. The priests had their rooms in the second storey, while above that the attic, with its shadowy corners and huge hand-hewn beams, in all likelihood was used to store supplies and provisions from France.

Though many questions remain unanswered, the *Jesuit Relations* furnish a detailed chronicle of those early days at Quebec and at the Mission of St. Joseph de Sillery. It is remarkable that in the midst of all their activities and despite discomfort and hardship the priests found time to write so graphically of their experiences in the New World.

At the time of Champlain's death in 1635 Quebec was only a village, consisting of a few buildings on the river bank and a few houses on Cape Diamond and at Côte Ste. Geneviève. The stone house of the Company of the Hundred Associates, Fort St. Louis, the parish church, and the residence of the Jesuits were the unpretentious public buildings.

The Jesuit Order in Canada was headed by a truly remarkable man, Father Paul Le Jeune. Fired with zeal for saving souls, he decided to make friends with the Indians and to learn their language by following them into the Lake St. John district. Travelling on snow-shoes and with a pack on his back, the intrepid priest spent the winter of 1633-4 sharing the hard and dangerous life of the Algonkins. He came to realize that only by settling the nomad Indians in one place and teaching them to till the soil

Noël Brûlart de Sillery, a French courtier who became a priest, provided funds for the founding and maintenance of the mission.

and to adopt some of the ways of civilization could he hope to establish a mission. But where could provisions, money, and workmen be found in the wilderness?

A gentleman of France, Noël Brûlart de Sillery, provided the answer. Touched by Father Le Jeune's writings from Canada, he resolved to devote part of his great fortune to the work of converting the Indians. Commander of the Order of the Knights of Malta, ambassador to Madrid and Rome, de Sillery had been a person of importance at the French court. But he fell into disfavour, and in 1634 at the age of fifty-seven became a priest. From its beginning in 1627, he had been a member of the Company of the Hundred Associates, which was responsible for the welfare of the colonists of New France. His deepened interest in religion made him even more responsive to their spiritual needs. He sent Father Le Jeune the equivalent of about $10,000, and later a

Hand-made cedar laths were used in the walls of the house. A section is exposed to view here.

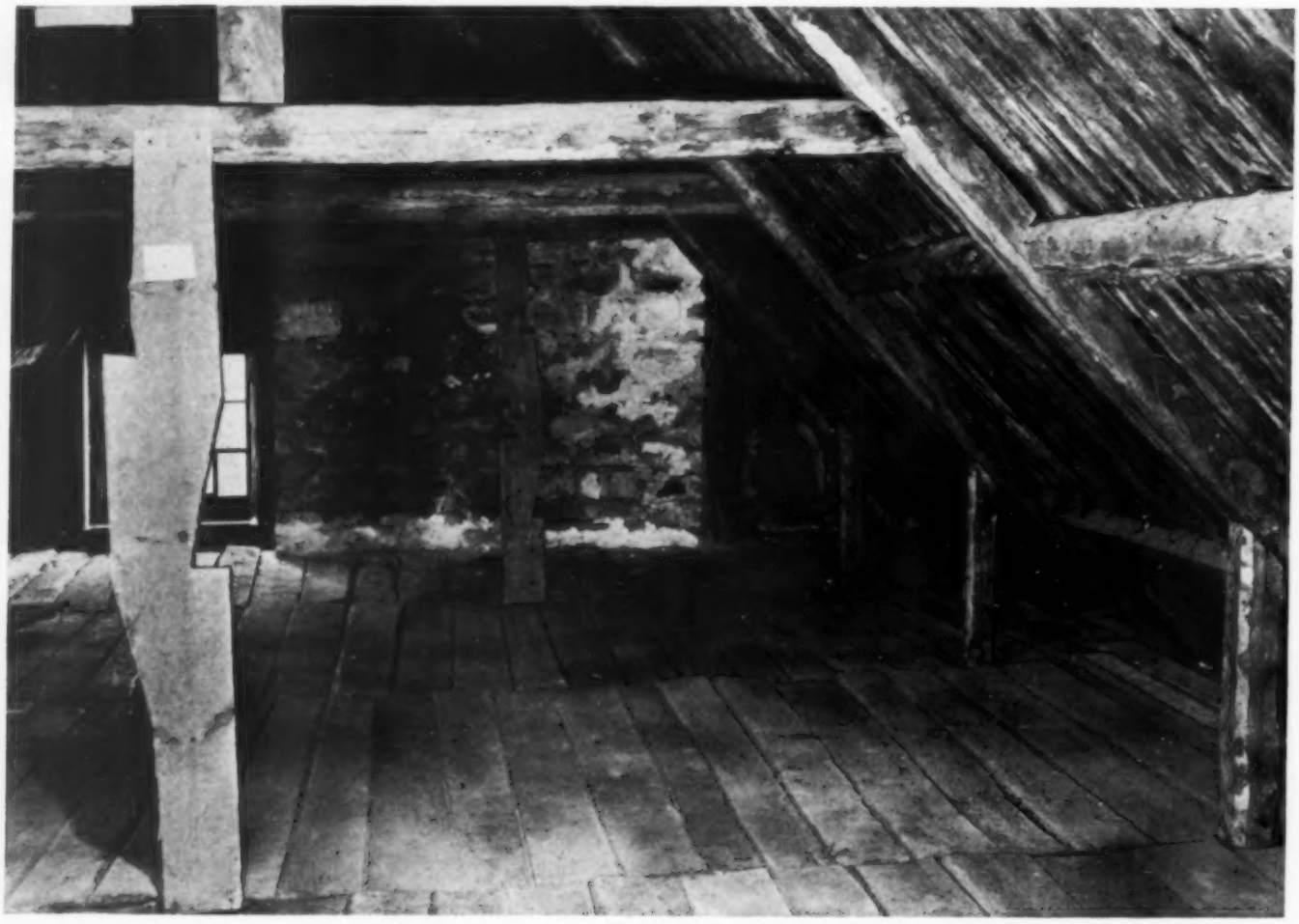
capital sum of $14,000, to found and maintain the mission.

M. François Derré de Gand, who owned all the land between Point Puiseaux and St. Joseph's Point, generously gave the site for the new mission. In the summer of 1637 workmen arrived from France and laid the foundations. Father Le Jeune and Father Jean de Quen moved into the finished house on the 14th April 1638. With them were two Indian chiefs and twenty members of their families.

In 1639 de Sillery sent a notarial contract firmly establishing the new mission. He also sent a tablet honouring the Virgin Mary, to be placed in the future church, and endowed a perpetual mass in her name. Father Le Jeune was overcome with joy and thankfulness.

Already several Algonkin families had settled on the land near the big stone house, and they took a keen interest in the services held in the temporary chapel. Occasionally an Indian would rise and address the congregation with greater effect than the priest himself.

The attic was probably used to store provisions. Its beams, hewn by hand, are fastened with wooden pegs. The notched vertical boards were used as ladders. At back may be seen an old chimney.



One of the original fire-places upstairs. Before it stand a pair of hand-made chairs.

In the archives of the Archbishop's Palace in Quebec is a document in Latin, the parish register of the Mission of St. Joseph de Sillery. It contains a list of thirty-two baptisms in 1638, fifty-six in 1639, and thirty in 1640. From this it is known that many of the Jesuit martyrs officiated at the mission. Among the godparents of the converts and infants were such distinguished people as Pierre de Puiseaux, de Repentigny, Olivier de Tardif, Jeanne Mance, and Paul de Chomedy de Maisonneuve, as well as the women who founded the Ursuline Convent and the Hôtel Dieu. There were weddings, too. In 1640 three Indian couples were married, wearing gorgeous clothes brought from the French court. Cannon were fired, and there was much ceremony and rejoicing.

When the Hospital nuns and the Ursulines arrived from France in 1639, they went eagerly to the mission to see with their own eyes the savages being taught to make gardens and perform rudimentary household tasks. Even more to their amazement, the nuns found the Indians joining in the hymns and prayers. Madame de la Peltrie, one of the Ursulines, was so moved by the sight that she knelt and embraced the shy and dirty little Indian girls. Only a short time later the nuns and priests were working night and day to save the Indians from an epidemic of smallpox which took a terrible toll of lives.

Four years after the founding of the mission about forty families were established in Sillery, and their influence was spreading. The Indians themselves carried Christianity north-west to Tadoussac at the mouth of the Saguenay River and westward to the country of the Hurons around Georgian Bay. The Hospital nuns built an infirmary near the mission at what is now Gignac Hill, but in 1644 fear of the Iroquois drove them back to Quebec. The latter had killed a lay brother and were daily growing

bolder. The Jesuits replaced the wooden stockade that surrounded the mission with a strong stone wall protected by four towers.

In 1640 de Sillery died and the financial burden of the mission fell upon the Jesuits. A short time later the Seigniory of Sillery was given to the Algonkin Indians to be administered by the Jesuits. This proved a welcome help, and they were able to repair the woodwork of the house where damaged by fire. The new church had not been built; but now, through the generosity of Michel de Marillac, it came into being. Called St. Michael's Church, it was dedicated on St. Michael's Day, 8th May 1647. A few months before Father Ennemond Massé, who established the Jesuit Order in Canada, had been buried under the transept.

The devoted fathers continued their labours. Altogether as many as 15,000 Indians visited the mission. As the years passed, however, many of them returned to their old way of living in the forests. Contagious diseases took many lives. Those who remained were demoralized by the trade in alcoholic spirits. Eventually this broke up the little colony. By 1676 the mission was almost deserted by the original converts, but for twenty more years it was frequented by the Abenakis.

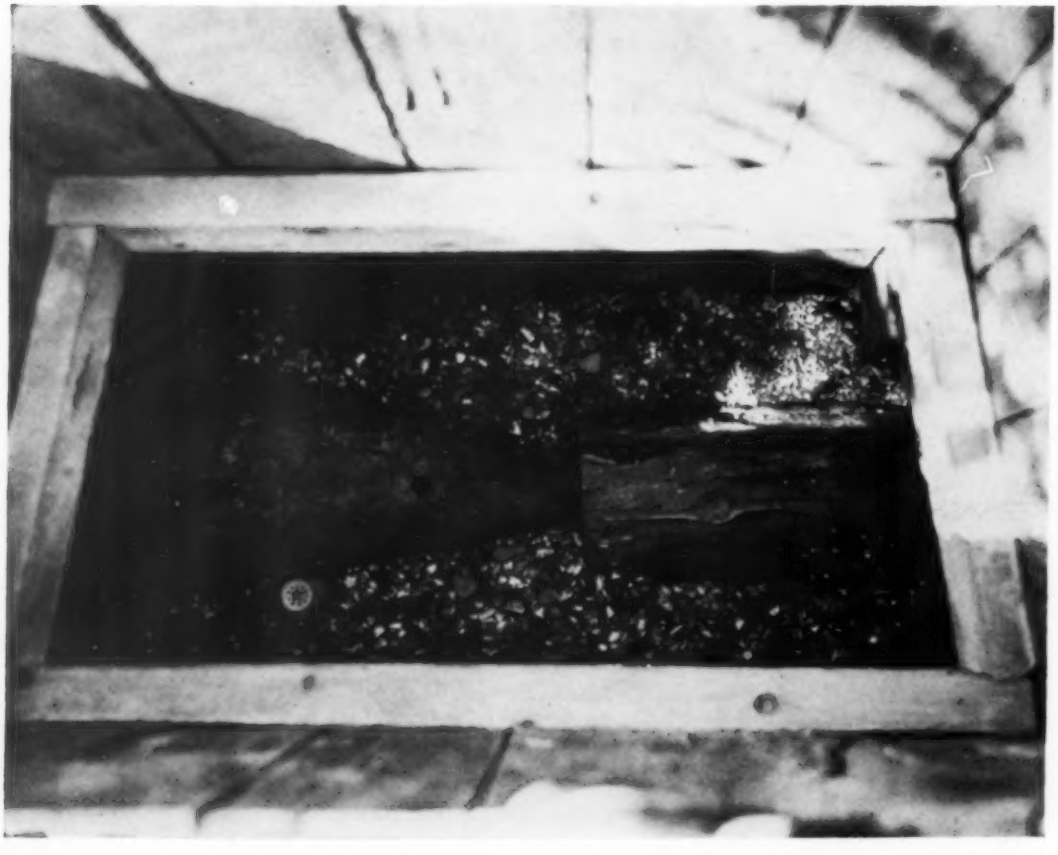
A document of 1733 describes the four buildings left on the estate: the mission house; the church, forty-six by twenty-four feet; a farm house, forty-six by sixteen feet; and a barn, forty by twenty-three feet, half of stone and half of timber. Thirty years later, when the property was leased to John Taylor Bondfield, a Quebec merchant, the Jesuit house became a presbytery used by the priest at Ste. Foy, who held services in the old church. The last member of the order having died in 1800, the Crown annexed all the estate.

William Hullet in 1802 took a fifteen-year lease on Sillery Cove and started raising hops. The chapel became a brewery and he lived in the stone house. On his death the property was leased to Robert Wood.

In 1820 George Usborne took over the house and made extensive repairs, but two years later gave it to Peter Patterson. Because the British Navy needed timber, Patterson built a wharf for ships opposite the house. Unfortunately he destroyed the old chapel and used its stone for the wharf.

James and John Jeffrey were the next tenants of the cove; then Charles Campbell, and Henry Le Mesurier. In 1853 the latter carried on a timber business there, but in 1860 he rented it to Richard Reid Dobell, who bought it outright in 1896.

In 1924 William Alfred Dobell offered the



A conduit of hollowed cedar logs. It was used to pipe water from a spring to the kitchen of the house.

OLD KNIVES, SCISSORS, HATCHETS, FOUND IN BASEMENT OF THIS HOUSE.
VIEUX COUTEAUX ET HACHETTES TROUVÉS DANS LE SOUS-SOL DE CETTE MAISON.

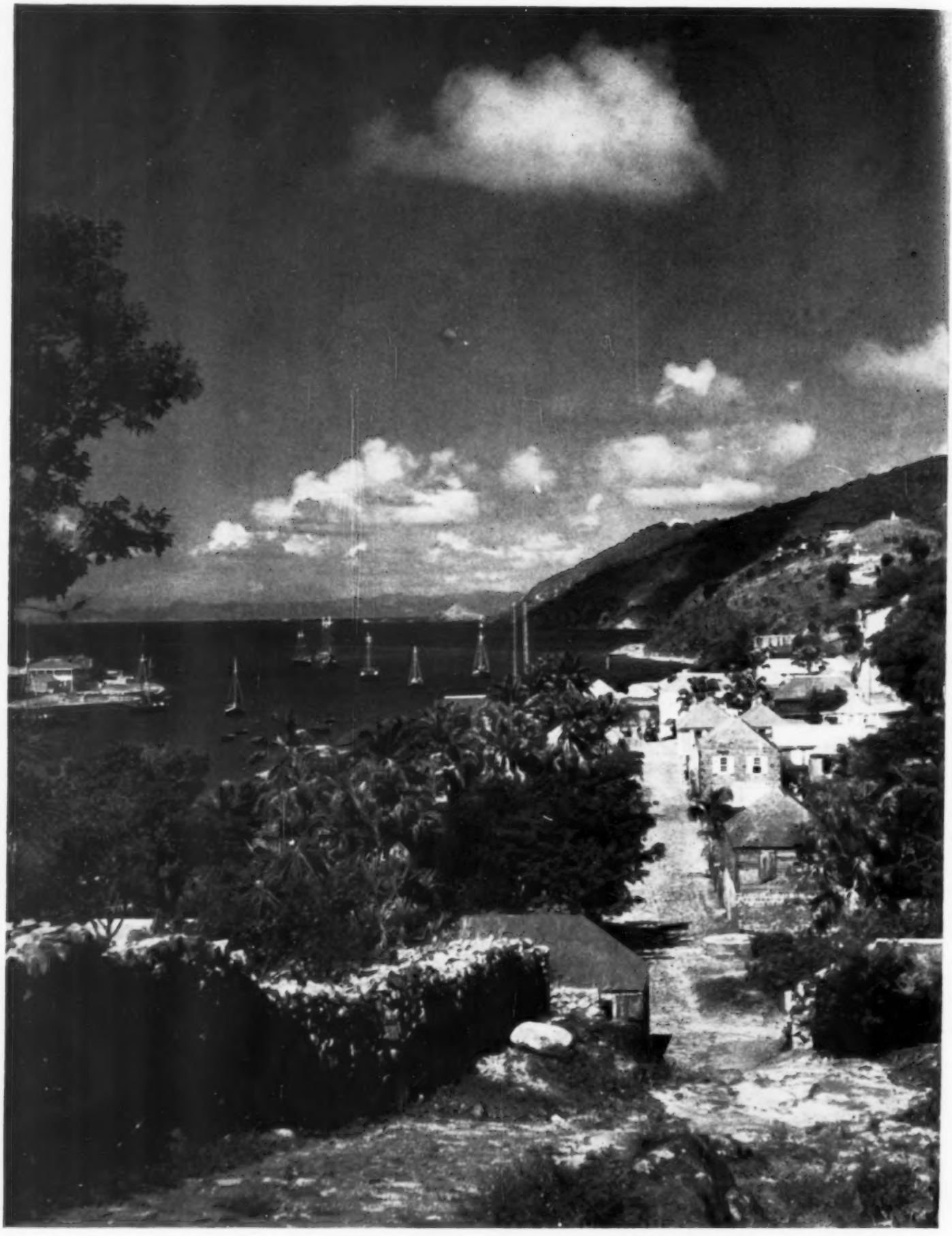
Scissors, knives, and hatchets were among the articles dug from the earthen floor of the basement.

Province of Quebec the Jesuit house for the Historic Monuments Commission. The government was to establish a museum, but the Dobells reserved the right to the land. In 1946 all of the Dobell property was bought by a real estate agent, L. P. R. Thibodeau, who tried unsuccessfully to interest the government in the purchase of the mission land.

Two years later Roland Gagné of Pointe-au-Pic bought the house, restored it, and opened it to the public as a museum. Today it contains an interesting collection of antique furniture, lamps, clocks, guns and tools. There are a few old kitchen articles dug from the earthen floor of the basement; but almost no relics of the early days of the Jesuit regime remain. A fine chair whose hand-made rivets and nails prove it to be over two hundred years old is said to have been used at many receptions. Another interesting exhibit is the weather-vane that once decorated the roof of the old Jesuit College in Quebec.

When the bones of Father Massé were discovered on the site of the old chapel, a public subscription raised funds in 1870 to erect a monument to his memory and to that of de Sillery. In 1953 under the direction of Father A. Pouliot of Quebec's Jesuit College further excavation was carried out. A test trench behind the house revealed a wall leading to a bastion. It is possible that further work might uncover the remains of the entire wall and the other bastions.

Birch bark canoes and sailing ships once passed the door of the Mission of St. Joseph de Sillery on the broad St. Lawrence River. Today great ocean liners have taken their places. Standing there, four-square on the river bank, Canada's oldest house symbolizes with unique eloquence the familiar motto *Je me souviens.*



With its cobblestone streets, picturesque little houses and harbour filled with sloops and schooners, St. Barthelemy has an Old World flavour unique in the Caribbean. A predominantly white population adds to its European atmosphere.

Market day on the island brings in the people "from the country", as St. Barthelemy-ites term anything outside the main town. Shopping is usually done on a donkey, and the sure-footed little beasts carry both their owners and the groceries.

St. Barthelemy: Stranger in the West Indies

by ADELAIDE LEITCH

Photographs by the author unless otherwise credited

POISED ON THE NORTHERN TIP of the Lesser Antilles in the Caribbean Sea is a unique little island scarcely eight square miles in area. Its shoreline is scalloped with sandy beaches, its flattish interior is networked with hundreds of stone 'hedges,' and its appearance is still so reminiscent of the century when Sweden owned it that it looks as if it might have strayed into the West Indies from somewhere else. It was Sweden's first and last possession in the Indies.

Today, the tiny island of St. Barthelemy has reverted to its original French ownership. French children go to school in what was once a Swedish jail while, alongside, the Swedish bell tower now houses a French clock that strikes every hour twice so that townspeople who don't catch all the strokes the first time will have a second opportunity to check the time of day a minute or so later.

With its cobblestone paving, its crisply

The hillside that sweeps down to the ocean is patterned with stone fences. Parts of St. Barthelemy have little vegetation other than spiny cacti and hardy shrubs, but home-loving islanders paint their trim houses and keep their property tidy. John Rennie

painted houses flush with the streets, its occasional hibiscus-covered courtyard gate, 'St. Bart' has the astonishing, freshly washed appearance of a rural area in north Europe — complete with a predominantly white population and a most untropical air of industry. Of a population of 2,500, only about fifty people are coloured.

The tiny, red-roofed 'capital' of the island, Gustavia, snuggles at the end of a rectangular harbour where local sloops and schooners fly the flags of half a dozen different countries. Because Gustavia is a free port, it is commercially wise for the owner-captains to register their ships elsewhere; so one ship may fly the Dutch flag of a home port of St. Maarten, fifteen miles away; while another carries the French tricolour but is registered in Guadeloupe. There is the British Jack for St. Kitts or Antigua, and the Stars and Stripes for, perhaps, St. Thomas in the U.S. Virgin Islands.

The ships sail out of St. Barthelemy on

Typical of St. Barthelemy are the stone fences that lace the main part of the island. In the foreground are a stone well and trough for the hardy cattle that the French islanders manage to raise. John Rennie

erratic schedules, depending on available cargo and the caprice of the Trade Winds, for wind is the sole power for most of the Caribbean's sailing ships. Many of the local sloops take an added precaution when they sail — a pig. For the Caribbean captains say, in all seriousness, that a pig will unerringly swim for the closest land if a ship is lost.

The harbour entrance was once guarded by three Swedish forts, today crumbling into ruins along with other souvenirs of Swedish ownership. New houses have been built on top of

Rectangular in shape, the harbour of Gustavia on the island of St. Barthelemy is a perfect refuge for the small fishing and trading ships of the island. In the foreground is a wayside shrine on the island's main highway.

some of the old Swedish stonework, and old Fort Gustav quietly moulders away above a freshly painted beacon and meteorological station.

A few trucks bump and bounce along the cobbles of Gustavia and out along the main, paved road of the island, but most of the people 'from the country' must walk to town. The labourers who have to rise at five o'clock for a three-hour walk, must repeat it again at night, with a take-home pay of a handful of French francs equivalent to about $1.25 in Canadian currency.

Yet, with what they have, the people of St. Barthelemy are fiercely industrious. They work long and hard on their stony fields, building their rows upon rows of stone fences as they clear their land. Their houses are spotless and the people themselves proudly St. Bart-ites even before they are Frenchmen.

In addition to Gustavia, the island boasts one other town, Lorient, and a handful of tiny, scattered settlements existing on what they can take from the soil and the sea. A blazing tropic sun turns part of the island into barren land, and the clouds that bring rain to the

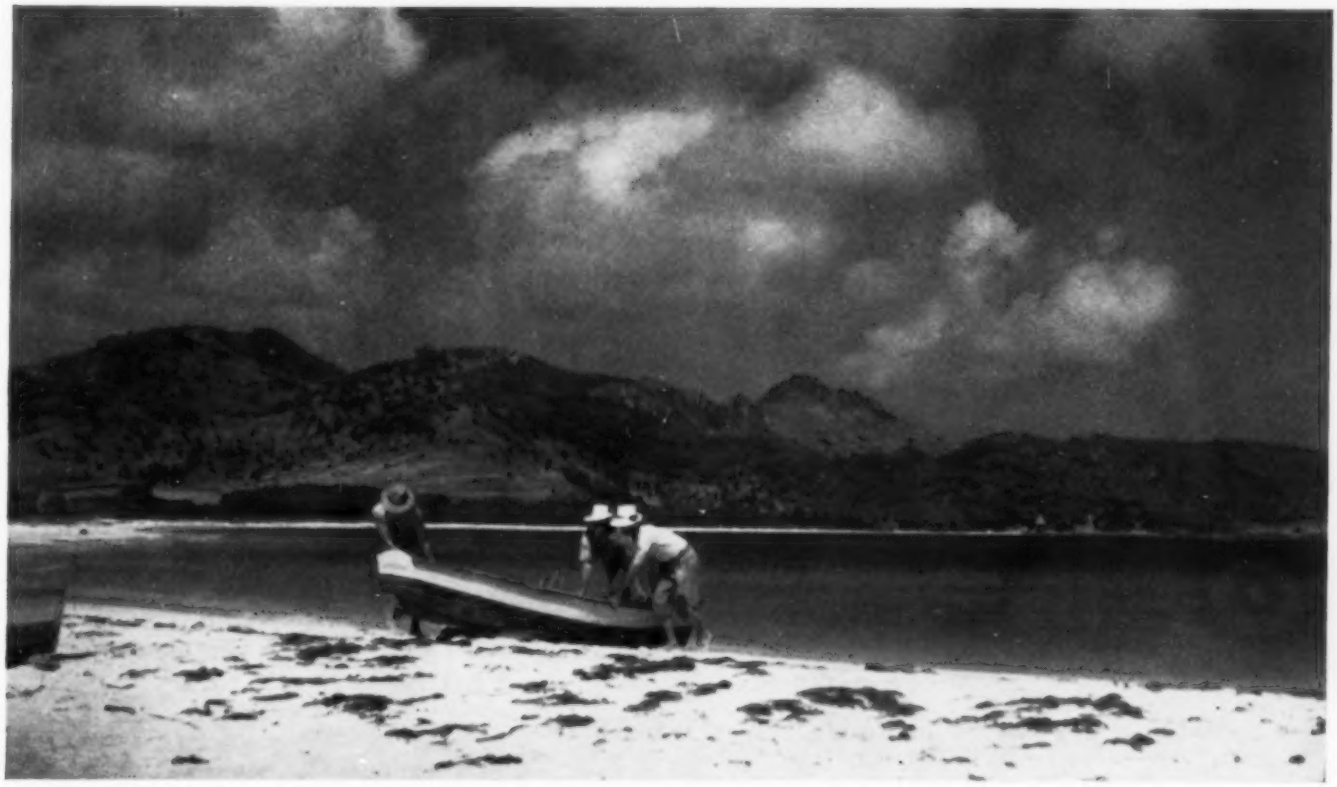
lofty hills of islands such as Dominica, skim over low-lying St. Bart. Water is a major problem on the island but, to make up for the dryness and the heat, it is one of the healthiest islands of the Caribbean, with no typhoid, no malaria, and no dangerous fish swimming close to its smooth, sand beaches.

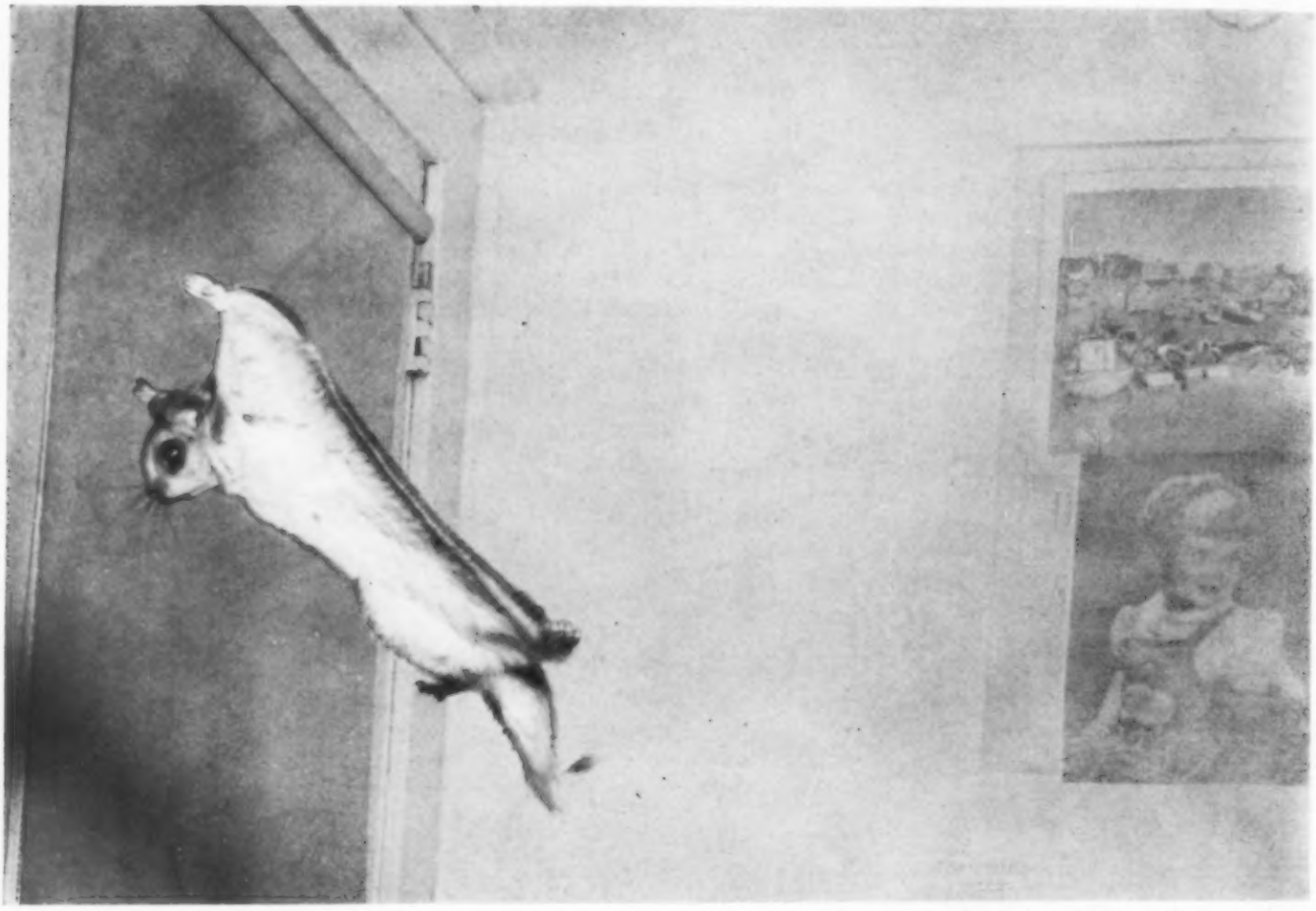
The history of St. Barthelemy dates from the discovery days of Columbus. It was not Christopher, however, but his brother Barthelemy who actually set foot upon the island and it is to him that the island owes its name. From 1648 through its earliest days of settlement, St. Barthelemy was French. It was handed over to Sweden in 1784 in return for certain favours regarding French merchandise at Göteborg in Sweden. France regained it by purchase in 1877. While a few old families remained after the Swedish era ended, most of the Scandinavians went back home. And so ended Sweden's sole venture into land-holding in the Caribbean.

Today, France keeps a parental eye on St. Barthelemy through a Commissary sent out from France, but in domestic matters that do not touch French federal law, the island is self-governing, with a mayor and council of seventeen members at the head. It makes its own laws, maintains its own municipal police, but also sends representatives to France and enjoys all the social benefits of the mother country.

On a clear day, the volcanic cone of Dutch Saba looms up on St. Bart's horizon; sometimes you can see as far as British St. Kitts farther south. But, except for its radio-telephone and telegraph, a privately owned plane and the erratic comings and goings of its sailing ships, St. Barthelemy is an almost isolated and more than half-forgotten island of the Caribbean, living up to its appearance of being an island of another world.

Small-scale fishing occupies some of the population of St. Barthelemy. Landing is no problem, for the tiny island is ringed with some of the finest sandy beaches in the Caribbean. Here, the fishermen are hauling in their boat, which will be covered with palms to protect it from the blazing West Indian sun.





Jinny in mid-air, with eye firmly fixed on her landing spot.

Pet Flying Squirrels

Notes and photographs by FRED BRUEMMER

One day a Kirkland Lake miner was felling a white pine and as the tree crashed to the ground it brought down two baby flying squirrels. The tiny creatures were stunned by the fall, but the miner, Mr. Joe Prince, rescued them, took them home, and built a cage for them where they recovered and made the transition from wild to domestic life happily enough.

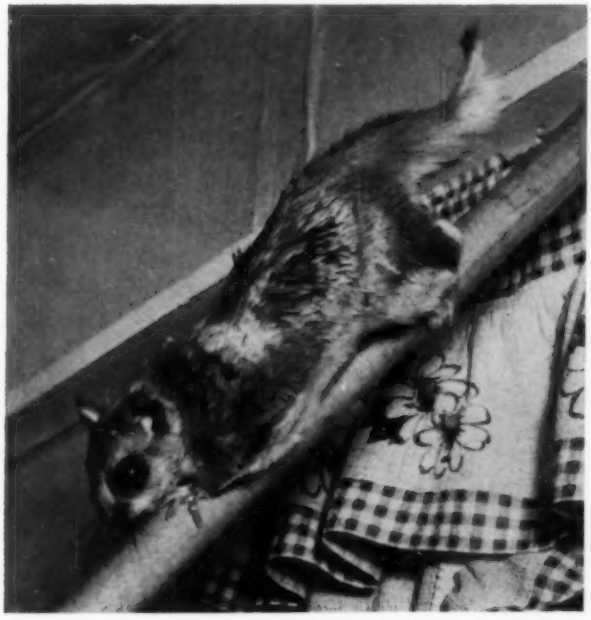
It was not surprising that they should have been there for the flying squirrel, *Glaucomys sabrinus*, is found all across northern Canada and often makes its home in a hollow tree or a disused woodpecker hole. Flying squirrels do not fly in the sense that a bird flies; they have a fold of skin along each side between foreleg and hindleg and by stretching out all four legs and extending these "wings" they can glide through the air with extreme dexterity. They take off from a height and, steering by tail and varying the slack in one or both "wings", they can control angle, speed, and course of their glide. Sometimes they will glide for as much as 150 feet from a tall tree. Usually they land on a tree trunk and seldom touch the ground. Flying squirrels are rarely as much as a foot in length and weigh from three to five ounces; like many nocturnal animals they have conspicuously large eyes. They live chiefly on nuts, seeds, and insects, but in captivity their tastes become more catholic, as Mr. Prince found with the two that he adopted as pets.

Jinny and Tommy, as they were named, eat everything, showing a special partiality for jams and jellies. They sleep during the entire day and wake up about ten o'clock at night. After careful scrutiny to make sure that there are no strangers in the room, they come out of their cage, clean their fur and look around for something edible. From then on they are busy

all night, either twirling and dancing in their cage or exploring every object in the room with great care and greater curiosity.

Despite the restricted space of Mr. Prince's apartment, these two little creatures have by no means given up their predilection for gliding. Their favourite spot is high up on the curtain pole. From there they will glide to the table and from the table back to their cage. They take hardly any notice of Mr. and Mrs. Prince, but they are rather shy in the presence of strangers and keep to their cage. The speed with which they can glide is amazing. They take careful aim, then push themselves off,

Sitting beside their cage, Tommy and Jinny help themselves to some jam.

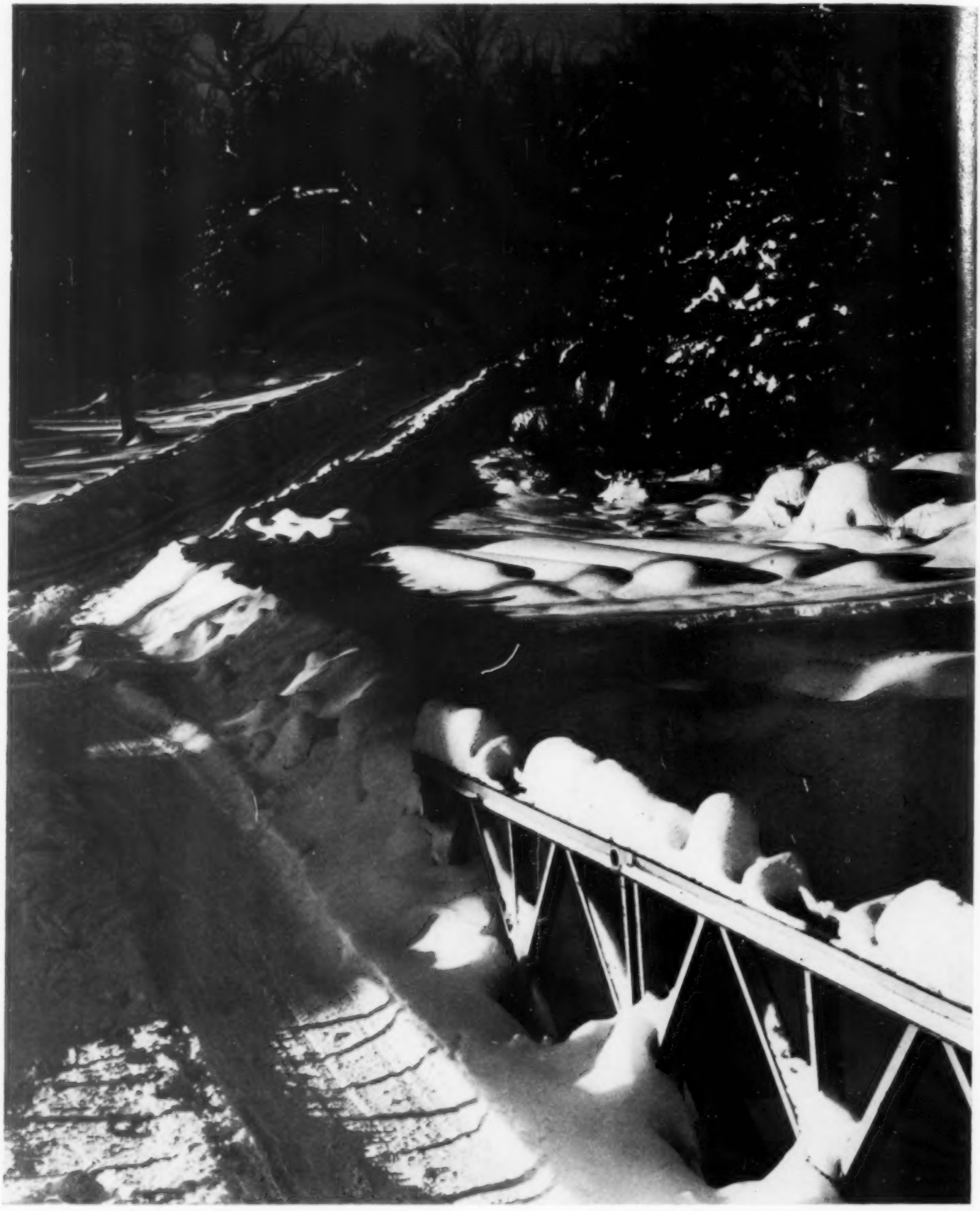


Instead of performing a spectacular glide Tommy slowly walks down a broom handle.

Landing on his owner's hand, Tommy spreads his tail to break the force of the glide.

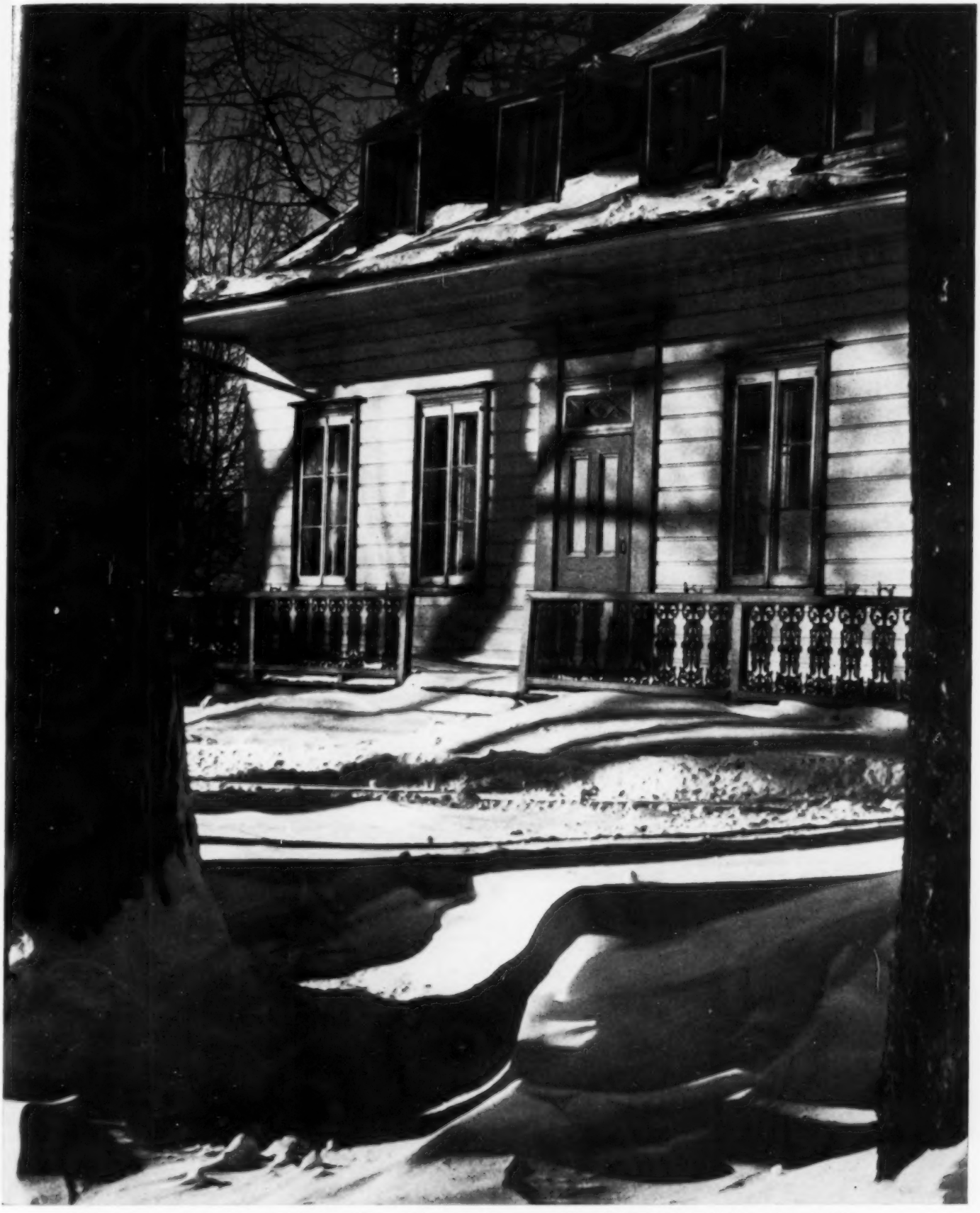
stretching out their front and back legs to spread the parachute-like gliding skin. They can alter the course of their flight with graceful ease and sometimes they even fly upside-down. Any high object will do for a starting point. Often they will climb on to the head of one of their owners to start their glide. Although in the summer months the door is often left open they show no wish to leave the room which is now their home. Like all their tribe, they are nocturnal, and their owners love them so dearly, that they themselves have developed nocturnal habits the better to enjoy the antics of their pets.

Jinny, in the cage, takes hardly any notice as Tommy comes in for a landing.



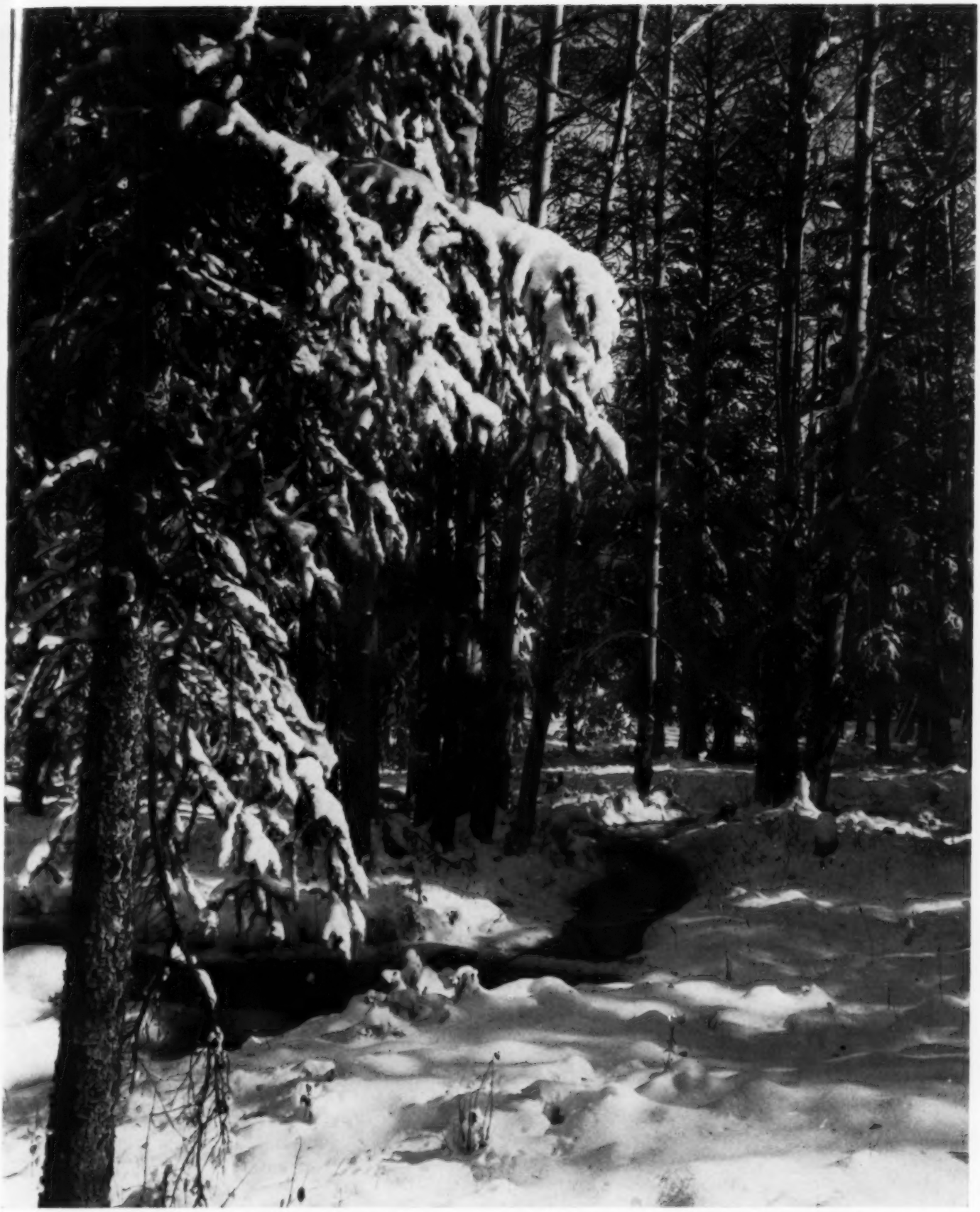
Pictures of the Provinces—IX

Winter sunshine, playing around the evergreens beside a woodland trail, makes pleasant patterns of light and shadow on the snow. The trail leads to a pulp and paper camp at Long Lake, about 100 miles north of Maniwaki in Quebec. Malak



When winter closes in upon the Province of Quebec, the snow often drifts high in field and yard. The mantle of white, however, does not conceal evidences of the province's colourful past, for old traditions and customs still survive and many interesting examples of yesterday's architecture remain despite the encroachments of industry. This old house with dormer-windows and handsome wrought-iron balustrade is at Charlesbourg. Quebec Provincial Publicity Bureau

A quartet of skiers find themselves in a veritable fairyland when a thick frosting of snow transforms the evergreens on Hollyburn Peak near Vancouver. The bare arms of two of the party bespeak the warmth of the sun. Vancouver and Victoria enjoy Canada's mildest climate. Although there is rarely any snow in Vancouver itself, there is excellent skiing in the mountains only a few miles away. C.N.R.



Sun-dappled snow throws the straight dark trunks of trees into sharp relief in the woods near Banff, and a stream, temporarily breaking its winter bonds, babbles of spring. But skiers racing down Alberta's mountain slopes will continue to enjoy their sport for at least another six or eight weeks. C.P.R.

EDITOR'S NOTE-BOOK

Michael Sheldon (*Telephone Service Across Canada*) is a graduate of Oxford and a former member of the British Foreign Service. He has written articles and stories for a number of Canadian magazines as well as television and radio scripts for the C.B.C. Now on the staff of the Bell Telephone Company of Canada, he travelled across the country in order to get first-hand experience of the many aspects of telephone service described in the article.

* * *

Jean B. Cartwright (*Canada's Oldest House*) is a freelance writer who lives in Quebec City and likes to write about the past of the Province of Quebec. Her holidays are often spent travelling and studying the countryside.

* * *

Adelaide Leitch (*St. Barthelemy: Stranger in the Indies*) has written many attractive articles for the Journal, mostly with Canadian settings. Both she and her husband, Dr. John Rennie, know how to handle a camera. The illustrations accompanying this article are the happy result of their combined efforts.

* * *

Fred Bruemmer (*Pet Flying Squirrels*) is a writer and photographer who has made several contributions to the Journal in the past. Mr. Bruemmer used to live at Kirkland Lake where the flying squirrels in the photographs were found, but he now lives in Toronto.

AMONGST THE NEW BOOKS

Acadian Odyssey

by Oscar William Winzerling

(Louisiana State University Press, Baton Rouge. $4.85)

Since the expulsion of the Acadians in 1755, it has been the constant endeavour of historians to record their wanderings and especially the places where they finally settled. This has attracted the fancy of another writer, Oscar William Winzerling, who, in *Acadian Odyssey*, makes a careful study of the much debated question of the deportation and reveals his noteworthy findings.

The author outlines the precarious position in which, throughout its history, French Acadia stood in Amer-

(*Continued on page X*)

THE TRAVEL CORNER

The snowman Bonhomme Carnaval *(centre), symbolizing the carnival spirit, is a familiar sight at Quebec's Winter Carnival.*

Quebec Provincial Publicity Bureau

Quebec Winter Carnival

Many members of the older generation can remember winters when people did not spend their hours of leisure slumped before television screens but sought diversion outside amid the snow and ice. There was skating in the open air on frozen ponds, rivers, and lakes. There were rides in horse-drawn cutters to the jingling of sleigh bells. There were sleigh-ride parties when, covered by buffalo robes and seated on straw, gay groups were drawn singing and laughing through the crisp white winter nights. Usually the climax of the season's activities was the winter carnival, a colourful fête which lasted for days and often combined some of the livelier features of a Mardi Gras, an athletic meet, and a hoe-down.

Last year Quebec City revived this old tradition and held a winter carnival, commencing its celebration very soon after New Year's Day. This year the carnival is being held again, though slightly later. It commences 27 January and runs on until 14 February.

The carnival will be presided over by the symbolic figure of a snowman known as *Bonhomme Carnaval*. In the heart of the city there will be an ice palace where a number of the carnival's events will take place. In public squares and private yards many statues of people, animals, and creatures of fancy will be carved in snow and ice. Some of these will be tinted pale confectionery colours. At night many will be dramatically illuminated by spotlights, as will the old grey stone walls and ancient gates of the Citadel itself.

Between 27 January and 4 February the International Dog Derby and the 43rd Annual Curling Bonspiel will be held in the city. During the same period there will be ice-cutter races and a drama festival. On 1st February a carnival queen will be crowned with appropriate ceremony at the Quebec Coliseum. The coronation will be followed by a student festival, also to be held at the Coliseum. This series of events will be climaxed by a Grand Carnival-Masquerade and torchlight parade

through the streets of the city, with mummers, clowns, and bands in the procession.

Between 6 and 9 February at night there will be a festival at Lac Beauport. Its highlight is to be the spectacle presented by hundreds of skiers rushing down the hills with burning torches in their hands. At the same time there will be masquerade dances and street frolics in the public squares of Quebec. A Grand Costume Ball with the theme *Originaux et Détraqués* will take place at the Chateau Frontenac on 10 February.

On 11 February there will be ski competitions at Quebec and Lac Beauport during the day and balls at night sponsored by various clubs and organizations. The following day an ice-canoe race will be held on the St. Lawrence River—the canoes racing through the river's ice floes. From the walls of the Citadel the next night there will be an elaborate fireworks display. On 14 February, the final day of the carnival, there will be a masquerade parade of the Mardi Gras type through the streets. Anyone may put on a mask and take part in this. It is an occasion for pranks, gaiety, and general letting down of hair.

It would take a great deal more space than we have at our disposal to do justice to Quebec. Perhaps nowhere else on this continent is the atmosphere of the Old World so prevalent and powerful. The narrow winding streets steeply rising from Lower to Upper Town, the historic old buildings, and the heritage of French culture are only the more obvious elements of Quebec's distinction and special character. It is one of the few cities in the northern hemisphere which remain as attractive and interesting in winter as in summer.

Inexpensive Tour of Italy

The Italian Touring Club has organized a tour which will be of interest to anyone wishing to see a great deal of Italy at as little expense as possible. Youth hostels, hotels, restaurants, and public and private camps have co-operated with the club. The itinerary is entirely for highway travel except for three short sections for which railway transportation is recommended. Although it has been designed primarily for cyclists, the tour may also be taken by people travelling by motorcycle, motor-scooter or car. Maps and booklets describing Italian regions may be obtained through the club. Membership costs about $2.50 a year. Applications for membership should be made directly to the Italian Touring Club, Corso Italia 10, Milano, Italy.

Of Interest to Skiers

This winter for the first time in twenty years some of the events in the Canadian Senior Ski Championships will be held at Midland, Ontario. A new ski jump, 190 feet long, has been built for the jumping contests which will take place there on 12 February. Downhill and slalom competitions will be held at Collingwood on 10 and 11 February, while the Canadian cross-country championships will be held at Sudbury 25 and 26 February.

A new ski jump, which is expected to be completed in time for the 1956-57 winter season, is under construction on Mount Norquay in Banff National Park. The jump has been approved for Olympic and F.I.S. world championship competitions. It was designed by Heini Klopper, who planned the jump at Obserdorf, Germany on which the present distance record of 465 feet was established by Thano Lutro of Finland in 1951. (The Obserdorf hill, classified as a "ski flying" jump, is not approved for Olympic or F.I.S. competitions.) On the new jump at Mount Norquay leaps of almost 300 feet will be possible. It is hoped that once it is completed Olympic or F.I.S. competitions may be held at Banff.

Crossing the Alps

An agreement between the French, Swiss, and Italian Railways permits motorists to have their cars and trailers carried through the Alps by railway. On round trips there is a reduction in fare. Drivers are given free passage in third class coaches. If they wish to travel second class, they may do so by paying the difference between third and second class fares. The charge for transporting trailers is half that for automobiles. That for motorcycles with side-cars is 40 per cent of the basic rate for cars, and that for motor-scooters and motorcycles without side-cars is 25 per cent.

Pacific Western Airlines Limited

Those who like to keep abreast of developments in the national transportation field may be interested in learning that Pacific Western Airlines Limited of Vancouver is now Canada's third largest commercial airline. This summer the company bought out its competitor on the west coast, Queen Charlotte Airlines. With its fleet of 62 aeroplanes, Pacific Western is reckoned next in size after Trans-Canada Air Lines and Canadian Pacific Airlines.

(*Continued on next page*)

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MAXIME RAYMOND, Q.C., *President*

(Continued from previous page)

For Salmon Fishermen

Our experience of sports fishermen is that they are always collecting oddments of information about their pastime and that when the snow is three feet deep on the ground they will be tying flies or shopping for lures and dreaming of the next season's sport. So, unseasonal as it may be, we do not hesitate to offer a note for salmon fishermen.

In New Brunswick the Bartholomew River, a branch of the Southwest Miramichi River which is famed for its salmon, has been blocked for over sixty years by a mill dam near its mouth which prevented salmon from ascending the stream to spawn. However, a 131-foot fishway has been installed in the dam at Blackville with eleven bays or resting ponds for salmon passing through into the river above. It is expected that next season the name of the Bartholomew River will be added to the province's already imposing list of salmon streams.

Bow River-Nordegg Forestry Road

Next spring or summer many of those touring Alberta by car will probably turn off at Cochrane on the province's Highway Number One near Calgary in order to enjoy the beautiful scenery on the Bow River-Nordegg Forestry Road. This 160-mile road was the last to be constructed during the past seven years by the Eastern Rockies Forest Conservation Board. Its completion marked the end of the road-building portion of the Board's work. It was officially opened to the public a few weeks ago.

In 1952 the Coleman-Kananaskis road, another forestry road, was opened to the public. This 119-mile road, following the foothills from the Crowsnest Pass to a point near the entrance of Banff National Park, proved exceedingly popular with motorists during the summer months. It is expected that the Bow River-Nordegg road will begin to share that popularity next season. (It is not open during the winter, of course.)

It is recommended that travellers planning to drive along the new road provide themselves with a full tank of gasoline, a spare tire, and a lunch. There are no service stations, garages, or cafeterias. It is also suggested that drivers stop at the entrance gates to fill out and leave behind one of the free travel permits provided by the authorities. This may not seem necessary, but it is a measure of protection for drivers and their parties in case of car trouble, accident, or forest fire.

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(Continued from page VII)

ic . Like many other scholars, he endorses the view that one of the causes of the tragedy of 1755 was the Acadians' ignorance of political conditions, and he holds Lieutenant-Governor Lawrence to be the stern exactor of their dramatic removal.

He focuses his attention on three groups of deportees: those originally sent to Virginia and re-exiled to England; those intended for the American colonies but rejected by them and repatriated to France; and, finally, those scattered on the North American Continent who found their way to the French seaports after the Treaty of Paris. In all, there were approximately 3,000 souls whose wanderings after 1763 the author traces very closely. Of this number, and of more special interest to him, are the 1,624 Acadian emigrants from France to Louisiana after the treaty of peace of 1783, which included a colonization scheme promoted by the Louisiana naturalist, Peyroux de la Coudrenière. This relocation, a fascinating project, was carried out in 1785 at the expense of the Spanish king; much credit for its success was due to the Spanish ambassador in Paris, Count de Aranda.

Acadian Odyssey thus constitutes a fitting title to a work which necessitated extensive research in the Acadian lore of French Louisiana. It is a factual and painstaking account of an almost forgotten true story, never as yet so accurately told, and makes a valuable addition to the long list of works published during the Acadian bicentennial year.

The author is also to be commended for having given his source references, for they are lacking in many supposedly scholarly historical productions.

ROGER COMEAU

* * *

Adventures in Paradise
by Willard Price
(Longmans, Green, Toronto. $6.00)

This is a delightful book because it gives one an unaccustomed sense of leisure. Mr. Willard Price has been wandering at ease amongst the loveliest islands of the South Pacific, where no one ever seems to be in a hurry, and where most things, including families, are shared in common. We who are accustomed to the rigours and vagaries of the Canadian climate may pause in wonder at those South Sea islands which produce food in such natural abundance that there is always more than enough for all. Clothing can be worn at the irreducible minimum, and houses need have no doors or walls because there is nothing to hide; nor have they any

(Continued on next page)

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(Continued from previous page)

furniture either, except soft mats to lie on. Since the houses merely consist of raised floors with supports for the roofs, they never obstruct the views of enchanting scenery which lie all around. Tahiti has somewhat reluctantly emerged from the Stone Age, but the process is far from complete, and cannibalism lasted till the middle of the nineteenth century.

This paradise is occasionally vexed with problems of government, and the competing interests of the European powers. Fiji has a specially difficult labour question because in 1877 a few Indians were introduced into the island to work on the sugar plantations. Here life was so much easier than in their own country that at the end of their ten years' indenture, they refused to return to India, but stayed on and prospered to such an extent that they now actually outnumber the native Fijians. But these troubles are for governmental departments to deal with, and Mr. Price is far more concerned with the transcendent beauty that he found everywhere by land and sea, and especially during his aqualung excursions under the water. He has much to tell us of amazing interest from the natural history point of view; but why, in describing the lovely atolls, must he seek to perpetuate that ancient error of the coral "insect" ? I think Darwin discredited that mistaken word more than a hundred years ago.

Mr. Price's title is well chosen, for he shows a way of living that can be a paradise of tranquillity for the mind as well as affording unwonted comforts and abundance for all the primitive needs of life. His drawings and photographs add much to the reader's enjoyment and understanding.

SYLVIA SEELEY

* * *

Christopher Columbus, Mariner
by Samuel Eliot Morison
(Little, Brown and Company (Canada) Limited, Toronto, $4.25)

This short book by one of the most distinguished of living historians, and certainly "America's foremost naval historian" (for once a blurb on a dust-cover tells the truth) is a new version of the life of Columbus. It is written "in the hope of reaching a wider public" than the readers of Admiral Morison's Pulitzer Prize biography *Admiral of the Ocean Sea*, which was published in one-volume and two-volume editions in 1942. Not in itself an original work of scholarship, it is nevertheless the product of the same factors that made the earlier book distinguished: careful research in the documents, combined with the practical voyaging of the Harvard Columbus Expedition, which followed Columbus' track in sailing vessels in 1939-40. It is, in fact, a conscious essay at popularization by a writer unusually well equipped for the task. Admiral Morison, in addition to being an uncommonly sound scholar, is one of the rather small group of North American historians who write with genuine distinction.

In the present writer's judgment, the book is a very successful venture, and it is to be hoped that it will have the readers it deserves. It is the story of a great man and a great seaman, simply and directly told by a master of the subject. It gives what the author calls "my own conclusions on the numerous controversial points in the Admiral's career". On some of these points — notably on his acceptance of Watlings (San Salvador) Island as the scene of Columbus' first landfall — some other experts have continued to disagree, but this is not a volume for the experts. It is for the general reader — the mature general reader, for it always calls a spade a spade. He should find it very interesting indeed. It is a pity, though, that the author has thought it necessary, at one point, to resort to burlesque. He gives us an article reporting Columbus' discovery which might have been published "if there had been a popular press on the American model in 1493" (". . . The Rt. Rev. José R. Maggártez, Grand Inquisitor of Spain, released this statement: 'This is O.K. provided no subversive Oriental ideas enter Spain. Captain Colón should have cleared with me before bringing Indians home . . .' ") This is funny, but Morison is one writer who really does not need to do

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th s sort of thing to get effects.

Admiral Morison has added as an ap pendix a new translation of Columbus' famous Letter on His First Voyage. C. P. STACEY

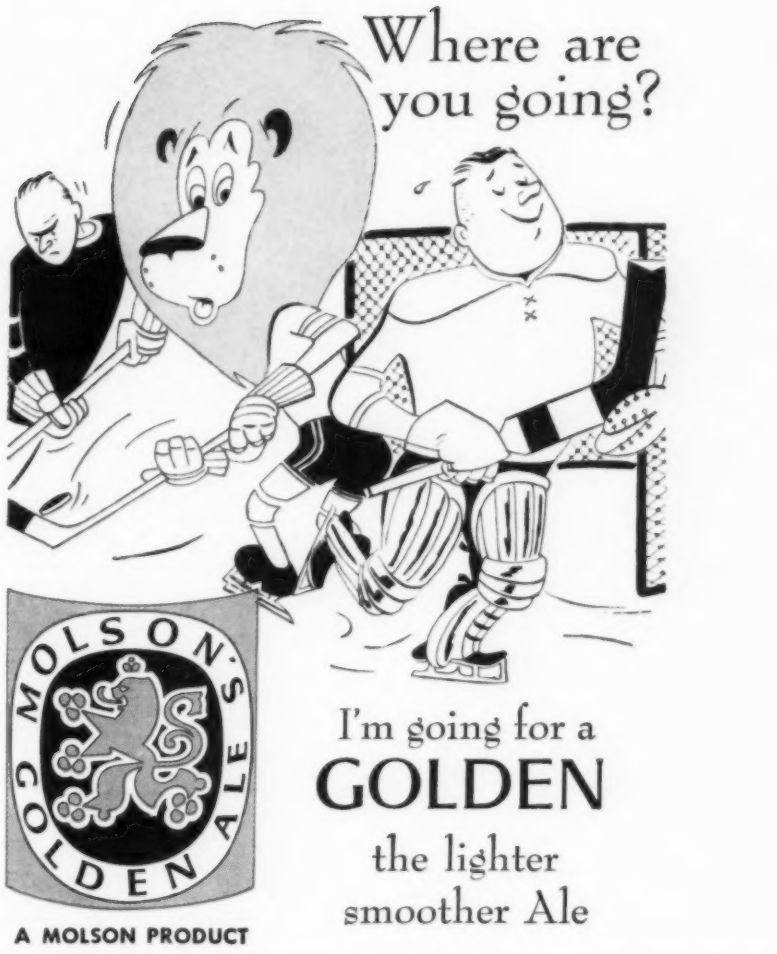
The Explorers of North America, 1492-1806

by John Bartlet Brebner

(Macmillan, Toronto, $2.50)

This is a new and cheap edition of a good book first published in 1933 as one of a series called *The Pioneer Histories*. It is a scholarly, semi-popular summary of the unveiling of North America from the time of Columbus to Lewis and Clark, written by an eminent Canadian historian who has taught for many years at Columbia University in New York City and has lately held the Pitt Professorship at Cambridge. When published it was hailed by the late Harold Innis, a good judge, as the first book to make a real attempt to relate economic factors to the progress of exploration. He was especially impressed by Brebner's underlining of the problem presented to traders and explorers by the obstructiveness of Indian "middlemen" who wished to reserve to themselves the business of supplying the tribes beyond. Herbert E. Bolton, writing in the *American Historical Review*, asserted that Mr. Brebner's origins and interests had led him to give undue prominence to the French explorers at the expense of the English and, still more, the Spanish. This complaint, while perhaps not wholly unfounded, is not likely to meet with much sympathy in Canada, where people are only too accustomed to defects of emphasis in the opposite direction. The book is based mainly upon the original sources; it is admirably organized and written, a model of lucid narrative; it was very well worth while reprinting.

There is, I believe, also a soft-cover reprint edition; this one, though pocket-sized, has hard covers. The publisher deserves our gratitude for producing it, but also a mild rebuke for giving us no indication of whether the new edition is or is not revised. Actually, although the type has been reset, a quick comparison with the original edition seems to indicate that there have been no changes; and the bibliography has not been brought up to date. This, however, does not seriously reduce the value of the book, which is still the only comprehensive study of its type known to the reviewer. It can be warmly recommended to everyone interested in the exploration of this continent who is not already acquainted with it. C. P. STACEY



Church Architecture in New France

by Allan Gowans

(*University of Toronto Press, $8.00*)

In this study, the author examines the stylistic evolution of the churches of New France from the earliest days of settlement to the middle of the eighteenth century.

He bases his approach on a *catalogue raisonné* of church buildings erected during that period, in chronological order, and advances the theory that the mature church form, as finally evolved in the late years of the *Ancien Régime*, is a synthesis of two major influences, one having its origins in Norman-Breton craft traditions and medieval forms, and the other having its origins in the classical, academic forms, then fashionable in Paris and introduced into New France by the missionary orders.

This theory the author substantially supports with an orderly and well-documented account, interspersed with facts (and foot-notes) carefully culled from an enormous mass of source material.

The book is commendable not only for its fresh and disciplined approach, but also for its appendix, the *catalogue raisonné*, a work of reference of great value.

The engravings from Richard Short's drawings are well reproduced and the book is agreeably designed. PAUL SCHOELER

* * *

Arctic Living

by Robert Jack

(Ryerson Press, Toronto, $4.00)

The author of this delightful book is a Scot who went to Iceland to coach a football team and ended by becoming an ordained minister of the Lutheran Church of Iceland. In a simple and unassuming style he tells of his life in Iceland and particularly on the small isolated island of Grimsey, forty-five sea miles off the north coast and within the Arctic Circle. Mr. Jack combined with his pastoral duties those of teacher to the island children, farmer (necessary for subsistence), doctor, "Peacemaker" (a sort of Justice of the Peace), and tax assessor. One of the most entertaining chapters reveals that in the filling out of tax forms Grimsey has much in

(*Continued on next page*)

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common with more sophisticated places, even though the currency may be sheep and fish instead of dollars and cents.

There can be few writers better qualified to discuss all aspects of life in this community, and the picture he paints is both broad and vivid, covering subjects such as farming, health, fishing, birds, the island's commerce, and the mail boat service. The book is not intended as a regional geography, but it contains much more solid information than the average travel book. Although Mr. Jack has now left Grimsey and is pastor of an Icelandic community in Manitoba, most of it was written while he was still there, and it has the immediate impact of the present tense, coupled with the resident's "we" rather than the visitor's "they."

The economy of Grimsey, like that of most of rural Iceland, is based on fish and sheep. But conditions are more severe there, and it is harder to coax enough hay from the fields to maintain the sheep and few milk cattle through the long winter. Few of the amenities of modern living are available. It was a great disappointment to this reviewer to learn that that gallant and lovable native son, the Iceland pony, is not to be found on the island. Even more surprising, the puppy brought by the author was the first dog ever seen there. Mr. Jack is fond of animals and writes about them with affection and a refreshing absence of sentimentality.

Most of the book, however, is devoted to the sixty or so people in his little parish, whose character and customs are described with understanding and warmth and a good deal of quiet humour. They come very much alive from the printed page, a sturdy independent folk, reserved and rather dour, but with the generosity, dignity and simple humanity of people who live close to the land everywhere.

The book is illustrated by a few, too few, photographs. More pictures of the islanders would have been welcome, and would have been more appropriate, if economy was the restraining influence, than portraits of the Bishop and the President of Iceland. The inclusion of a map would also have been helpful. But these are small things which do little to detract from the value of the book. It is to be hoped that Mr. Jack will write more about Iceland, and perhaps, as Vilhjalmur Stefansson suggests in a foreword, about the Icelandic tradition in Canada.

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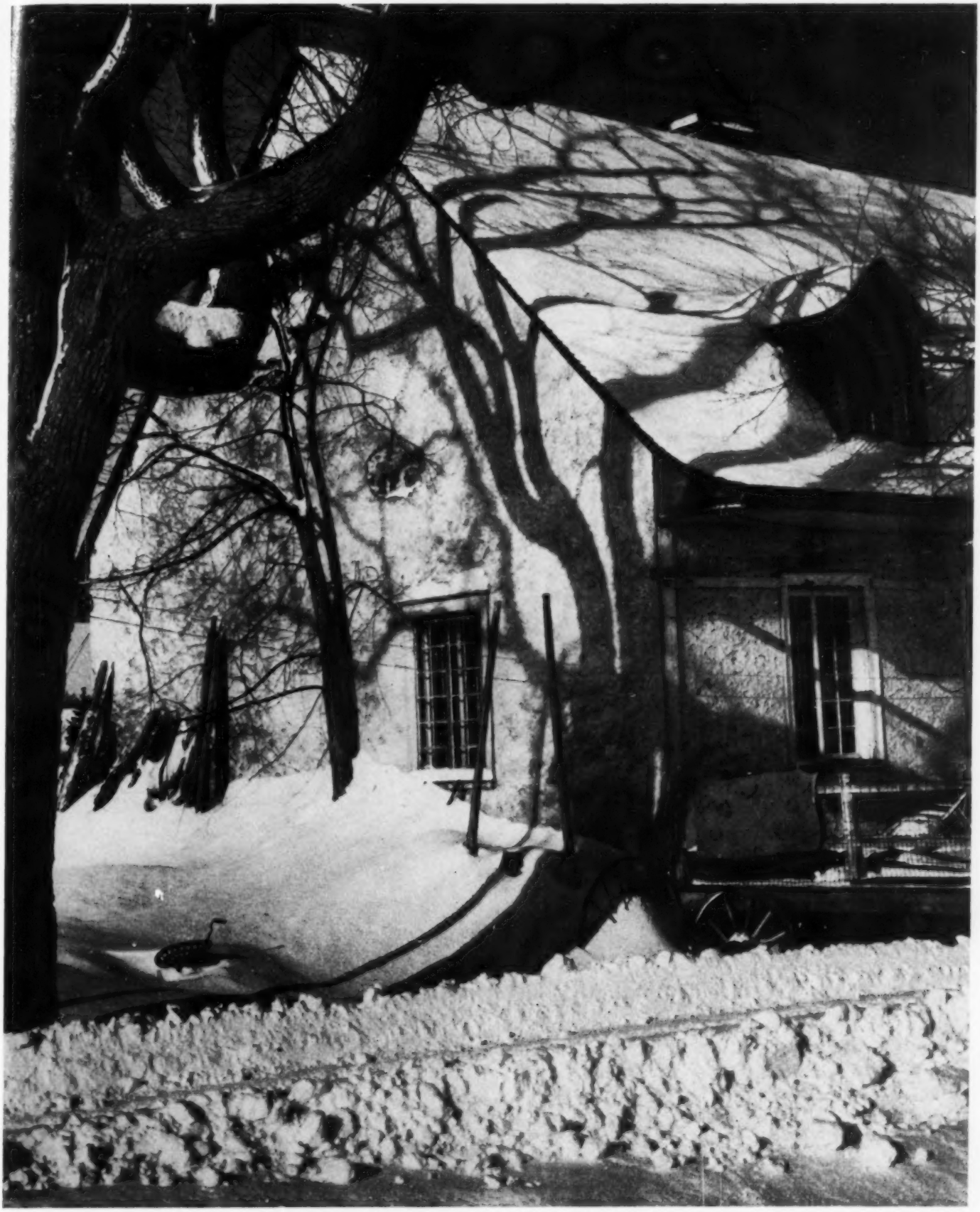
Doctors, Drums and Dances
by Andreas E. Laszlo
(Hanover House, New York. $4.00)

So many books are produced nowadays by people who have visited hidden corners of the earth, that it will soon be difficult to find any native tribe which is not suffering from the ill-assimilation of the white man's civilization. Dr. Laszlo, however, was remarkably successful in his quest, for he chose the Portuguese colony of Angola in southwest Africa as the scene of his investigations, and he seems to have enjoyed the constant dangers and discomforts into which his researches led him. His worst dread was poisonous snakes, and one might imagine that the snakes must have known it by the way they lay in wait for him at every turn. The main purpose of his journey, for which he was content to endure so many horrors, was to obtain moving pictures of tribal customs and rituals, hitherto unknown to the outside world. His medical interests were little more than observational, and he pays frank and open tribute to his unlettered black colleague, the witch doctor, whose powers of hypnosis, and use of psychoanalysis are outside the realm of anything known to western practice. After witnessing the treatment of an epileptic patient by the communal effort of the medicine man and some of his tribe, Dr. Laszlo exclaims, "Certainly I could never produce this phenomenon, and decidedly not as deftly and smoothly as he did. Congratulations my colleague! Well done." On other occasions Dr. Laszlo remarks on the neatness of native surgery, and he tells of a powder known only to the natives, which cured a boy who had been bitten by the deadly mamba. The doctor himself carried ampoules of anti-snake bite serum prepared by the Pasteur Institute, but he expresses a fervent wish that he could get hold of some of that magic powder as a further safeguard.

Perils from big game, perils from floods that obliterated roads and forest tracks, all added to the thrills of the doctor's expedition. In making all arrangements for his trek across country, he gratefully acknowledges the helpfulness of the Portuguese authorities, and he also gives us a charming picture of the companion who served him so well in the capacities of cook, factotum, and guardian angel, his native boy, nicknamed Sunday Joe.

The illustrations in the book are a striking tribute to the author's skill as a photographer, and they give convincing proof of the success of his expedition.

SYLVIA SEELEY



An old Jesuit mill at Loretteville, Quebec. Driscoll

Natural colour photograph from the International Chess Collection of Carlebach Gallery